A comparative study of prescription processing systems and data usage in

ENGLAND

HOLLAND

WEST GERMANY

T H E P R E S C R I P T I O N F L O O D

A POWERFUL CHANNEL OF INFORMATION

OR

AN EXPENSIVE MORASS OF PAPER ?

A KINGS FUND FELLOWSHIP REPORT

1987/88

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F O R E W O R D

The Prescription Flood

I chose this symbolic title to emphasise the enormous volumes of paper flowing through the pharmaceutical systems of the industrialised nations. The paper represents enormous sums of money spent on pharmaceutical products. The costs mount relentlessly. The mechanisms to account for it are complex and costly.

Is the volume such that there is no control over, or knowledge of, what is happening? Are our mechanisms tuned to cope or are they wallowing in the morass or nibbling only at the tallest reeds poking above the rest?

I do not refer to the question in symbolic terms again. The rest of this paper is a description of the systems operating in England, Holland and West Germany. It attempts to identify their strengths and weaknesses and suggests appropriate action to remedy these, within the existing structure and resources.

It is a manager's study targeted at helping management to improve effectiveness, service and efficiency of this part of their health-care system. Although this will be of interest in the political arena, there are no political judgements in the study.

Kings Fund Fellowship

The project has been sponsored by the Kings Fund College, as a Travelling Fellowship for NHS Managers, funded by the NHS Training Authority. With this support I spent one week in both Holland and West Germany, and made some visits to relevant bodies in England.

A lengthy list of people who have contributed to the study is shown in detail as Appendix VI . I am most grateful for their generous support. In particular I wish to thank my employer, the Prescription Pricing Authority, Chief Executive and Assistant Chief Administrator, and my own staff, for their backing and encouragement.

I hope all those concerned will find the time, money and effort an exceptionally good investment.

Disclaimer

In particular the analyses, judgements and proposals should not be construed as representing the Authorities views or policies.

Although figures and factual statements have been checked as far as possible it is likely that some errors will be included. I hope these will prove of a minor nature.

Wherever I make a proposal I have costed it if possible. Naturally the costs are intended as a guide to the likely savings, because I have not been able to carry out discussions about these ideas, or go into great depth.

The comparative costs between countries should be viewed in a similar fashion, because of the exchange rate fluctuations, cost of living differentials etc.

Omission

I have written an English section about Monitoring of Drug Misuse. Unfortunately, providing similar information on Holland and West Germany would have been a major exercise and I was unable to make the necessary contacts in the time available.

C O N T E N T S

LIST OF FIGURES, ILLUSTRATIONS ETC.

GLOSSARY OF TERMS

Family Doctor – A doctor who deals with illness in the community, affecting any member of a family, outside hospital. In all three countries they are self-employed.

Pharmacist – The self-employed professional running a business in dispensing drugs (and appliances etc.) Normally known in England as a dispensing chemist, and Apotheke in Germany and Holland. The word pharmacist is used throughout.

ENGLISH TERMS

Family Practitioner Committee (FPC) – The English NHS body which registers patients, and contracts and pays family doctors and pharmacists.

Prescription Pricing Authority (PPA) – The English NHS body processing prescriptions and providing payment schedules to FPCs and prescribing information.

Department of Health and Social Security (DHSS) – The central government health department

Regional Medical Officer (RMO) – A doctor employed by DHSS, carrying out, among other tasks, prescribing counselling.

Home Office – A central government department, often known in other countries as the Interior Ministry. Responsible for control of drug abuse with a special inspectorate.

DUTCH TERMS

Ziekenfonds – Statutory health insurance fund.

Recepten Uitreken Controller Bureau (RUCB) – Prescription Processing office; often a co-operative between pharmacists and Ziekenfonds.

Afleveringen – Dispensing fee for each item paid to pharmacist.

WEST GERMAN TERMS

Krankenkassen	-	Statutory health Insurance Fund
Apotheke-Rechen Zentrum * (Regional pharmacists Bureau) **	-	A co-operative company working for local pharmacists to pay their claims for dispensed drugs and appliances.
KassenÄrtzliche Vereinigung (Federation of Panel Doctors)	-	Association of doctors set up in every Federal state (and nationally) to fulfill the tasks of doctors who carry out work for the Insurance Funds. Concludes agreements on obligations, remuneration etc., and settles accounts and monitors compliance.
Allegemeine der Orst Krankenkassen (AOK)	-	The General Health Insurance Fund (Germany's largest)

GENERAL TERMS

V.D.U.	-	Visual Display Unit - a keyboard and display screen - two vital parts of a computer system.
Leaked Data	-	A term used in England for occasions when a patient takes a prescription for dispensing outside the area where his/her family doctor works. Additional sorting is required to produce prescribing information.
Main Frame	-	Large computer required for processing high volumes of data.
N.H.S.	-	National Health Service (England).
Prescription	-	The meaning differs in England according to context, it may indicate the forms(s) or the number of items on the form(s). I have tried to use Forms or Items to make this clear.

* **In Munich the Bureau title is Verrechnungstelle der (Süddeutschen) Apotheken.**

** My interpretation

INTRODUCTION

CHOICE OF COUNTRY

I selected Holland and West Germany to study and compare with England and each other for the following reasons:-

a) The service is largely free at the point of delivery in each case, the funding being organised separately½

b) Doctors and Pharmacists are independent professionals who agree to offer certain services.

c) As a result of this the prescription processing systems should show a number of common features which would throw up useful contrasts and comparisons.

I felt it was important NOT to study a country where payment is made at the point of delivery (such as France) because it would be difficult to draw any useful comparisons which could be applied at local level. Whether or not that was valid I feel that the conclusions I have been able to draw fully support the decision.

Common Trends

Having completed the project I can now comment that there are some significant common trends, considerable diversity in approach, and a fascinating range of strengths and weaknesses in the system of each country.

The most notable common factor is the general battle to contain costs. This has led to a high priority for data capture of prescribing information and its subsequent use (prescribing counselling).

Each country can benefit by drawing on the experiences of the others to enhance its system.

Balance of Study

Since making my visits to Holland and Germany I have spent much of my time involved with the project on researching the implications of what I observed there.

Many of the results of this are included (in the Appendices). As a consequence, the proposals for developing new systems in England are expressed in much greater detail than it is possible for me to do for Holland and West Germany.

COMMON FEATURES OF PRESCRIPTION PROCESSING SYSTEMS

	ENGLAND			HOLLAND		WEST GERMANY		
	PPA	FPCs	DHSS	RUCB	Health Insurance Fund	Regional Pharmacists Bureau	Commercial Bureau	Health Insurance Fund
Payment of Pharmacists	✓ Calculate	✓ Send Cheques		✓	(✓)	✓	(✓)	(✓)
Prescription Information Capture (%)	✓ 100%			✓ 100%	(✓)	✓ 5% + ?		(✓)
Information Service	✓ April 1988 100%		✓		✓ High Cost Only	✓ High Cost Only		(✓) High Cost Only
Suspicious Prescriptions	✓	✓		✓	✓			✓
Prescribing Counselling		? (Future)	✓		✓			✓

Key: (✓) Alternative route for processing

Figure 1

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

A summary of the conclusions and major recommendations is given on the schedule on the next two pages. The key points from these summaries are expanded below.

Key Conclusions

1. Each country has techniques and systems which could prove useful in both the other two.

2. The system for paying pharmacists in Holland and Germany is simple to operate and understand. By contrast the system in England is exceptionally complex.

3. Data-capture in England is high speed and consequently comparatively low-cost. Surprisingly, data capture in both Holland and Germany, working at very similar speeds to each other, is slow and expensive. It is planned to expand Germany's present limited data-capture at considerable cost..

4. The prescription processing bureaux in Holland seem likely to close quickly because pharmacy data-capture is very attractive. By contrast a similar development in England has major problems of complexity.

5. A fresh look should be taken in Germany at how the Regional Pharmacists Bureaux and commercial agencies pay pharmacists and claim health insurance fund reimbursement. The present method is purely a check on arithmetic, and appears to cost more than the volume of cash error and creates double handling and delay.

6. The information service in England is highly advanced, comprehensive and quick. The service in both Holland and Germany is subject to considerable delays and operates on a very limited basis. Long delays are a major impediment to effective counselling.

7. Prescribing counselling is developing in all 3 countries. There are some indications that a new look at its potential may show a much wider remit to be effective.

8. The Prescription Pricing Authority PPA (England) has the strategic position, organisation and technology to play a greatly expanded role in monitoring drug abuse and detecting forged and stolen prescriptions and fraud.

9. The crime prevention potential of PPA seem particularly important at present because the security of English prescription forms seems to lend itself to forgery and theft, and unlike Holland there is no system which deters this.

Key Recommendations

England

1. Proposals are made to counter forgery and theft by introducing a security mark and printing doctor numbers and a form serial number on all prescriptions. The PPA would develop a system to monitor all forms and issue stop-lists

2. The technology involved in this development may have a significant effect on PPA data-capture productivity. It appears self-financing in the long run purely in financial terms even without that efficiency improvement.

3. Clear cost-savings in the PPA are comparatively marginal - 1½% of total budget - but several proposals are made which may raise this estimate after detailed examination or trial.

Holland

1. In view of the apparent short-life of prescription processing bureaux in Holland it seems inappropriate to recommend improvements in data-capture speeds. This reservation is due to the time investment probably required to retrain staff and re-program the Dutch data-capture equipment, which may well have the capability of significant speed development.

2. It is important for the Dutch attempt to restrain costs to have a fast response information system. I am able to make 4 proposals to bring Dutch data-capture up to date. All are capable of quick, low-cost application.

Germany

1. The present system should concentrate as much resource as possible on data-capture. Any shortage of capacity should be dealt with by simple checks against historical claims, using averages and weights.

2. German health care managers should consider the possibility of applying the English data-capture speeds. It is suggested that if this was successfully achieved the data-capture level might rise to 66% funded by the pharmacist levy.

3. Health Insurance Funds should consider whether this data would be more valuable to them than checks on arithmetic.

General

Prescribing Counselling

There are no fully researched studies into the impact of prescribing counselling, of using different techniques and training methods, and it is suggested that such studies could make this more effective.

For example there are some indicators that comprehensive counselling would be worthwhile (see Text: England). Germany considers that stress control training is very effective and pharmacists make excellent counsellors.

SUMMARY OF CONCLUSIONS

ENGLAND	HOLLAND	GERMANY
Simple organisational structure for whole health care system	Simple structure for pharmaceutical services. Quite complex for secondary (hospital) care etc.	Very complex structure for all services
Exceptionally complex regulations for paying pharmacists (and dispensing doctors etc.)	Very simple regulations for paying pharmacists and dispensing doctors	Very simple regulations for paying pharmacists. No dispensing doctors.
Major problems with pharmacy data capture due to complex system and large drug list.	Pharmacy data capture attractive and generally works well due to simple system, small drug list and pharmacy-patient registration system.	Pharmacy data-capture not relevant at present (see below)
100% data capture by PPA at high speed and low cost	100% data capture by either pharmacist or RUCB; low speed, often high cost and delay, costs exceed PPA by 200% - 250%	Payment of pharmacist is by arithmetical check on his claim. Data capture low (5%?) only on high cost doctors as a separate, double handled exercise. Costs vary from 200% to 400% above England.
PPA Well positioned for leading role in processing. Marginal efficiency improvements possible and scope for expanding role and improving service at low cost.	RUCB future prognosis - poor	**Regional Pharmacists Bureaux** Well positioned for future development, but existing system appears ineffective.
Prescribing information - Summaries of 100% of data from April, 1988 High cost doctors - 100% in detail All doctors - detail on request All doctors - detailed catalogue on request.	Prescribing information only for high cost doctors annually	Prescribing information only for high cost doctors.
Presentation - high quality using graphic display and tables	Presentation - tabular format	Presentation - tabular format
Prescribing Counselling - carried out by health department doctors. Future developments are under consideration. No formal training programme Low ratio of counsellors to doctors compared with Holland and Germany. This could present serious problems resulting from volume of prescribing information commencing April, 1988	Prescribing Counselling - Carried out by health insurance fund doctors and pharmacists. No formal training programme	Prescribing Counselling - Quasi-legal system being largely replaced by counselling involving health insurance fund and in some cases also the Federation of Panel Doctors Pharmacists are considered the best professionals for this role in a number of quarters. Training in counselling and stress control regarded as essential for the role.
Internal evidence of effectiveness of health department doctors but no studies of impact of different techniques etc.	No evidence (except anecdotal) of effectiveness of counselling. Politically essential activity.	No evidence of effectiveness of counselling but considered commercially advantageous (for health insurance fund)
There are some indications that counselling all doctors may prove cost effective		
Stolen/Forged Prescriptions Monitoring of Drug Abuse Monitoring Fraud etc. Some of the problems appear to be increasing and the PPA has the organisation etc., to play a leading role at low cost.	The RUCB play a role but do not systematically look for suspicious incidents. The patient-pharmacy registration appears to be a major deterrent to crime.	The Regional Pharmacists Bureaux play no role in crime detection or prevention.

FIGURE 2

SUMMARY OF RECOMMENDATIONS

ENGLAND

Security

1. Print Prescription forms with a security mark (as in cheques for example)
2. Print doctor details in machine readable type and add a serial number for every form.

F.P.C.'s

Consider the income benefits of running a carrier (or courier) service with prescriptions from pharmacists and doctors direct to PPA.

PPA

- Introduce high speed machines to read doctor number/serial number and/or number the forms for processing
- Introduce Dutch "Box-Filing system" to save time in pharmacy and in PPA.
- Consider the Dutch "prescription endorsement schedule" for possible productivity improvement - and benefit for pharmacist.
- Consider Dutch advance payment system using rolling average.
- Introduce precision industrial balances to assist in checking forms received etc.

HOLLAND

RUCB's

Introduce programme to bring data-capture up to date

- use terminals for whole day by using extra staff
- exchange work with RUCB's who are up to date
- reduce checking on computerised accounts
- abandon 100% data-capture until arrears are cleared.
- use precision industrial balances to check number of forms for calculating average.

GERMANY

Regional Pharmacists Bureaux

A. Devote all possible staff to data capture.

   Introduce simple checks where capacity for data-capture inadequate.

   Pre-sort high-cost doctors and direct them to data-capture for current month.

B. Change system design with a target of attaining English data-capture speeds.

Health Insurance Funds

Checking

- consider centralising checking on payment to achieve high outputs.
- check on patients status separately

Information Service

Graphic data should be considered for its likely impact on the prescriber.

PRESCRIBING COUNSELLING

Controlled trials are desirable to test the effectiveness of counselling by different strategies, with different professionals, who have had different preparation for the role.

FIGURE 3

P A R T II

E N G L A N D

The Structure of the NHS - emphasising the Prescription Processing System

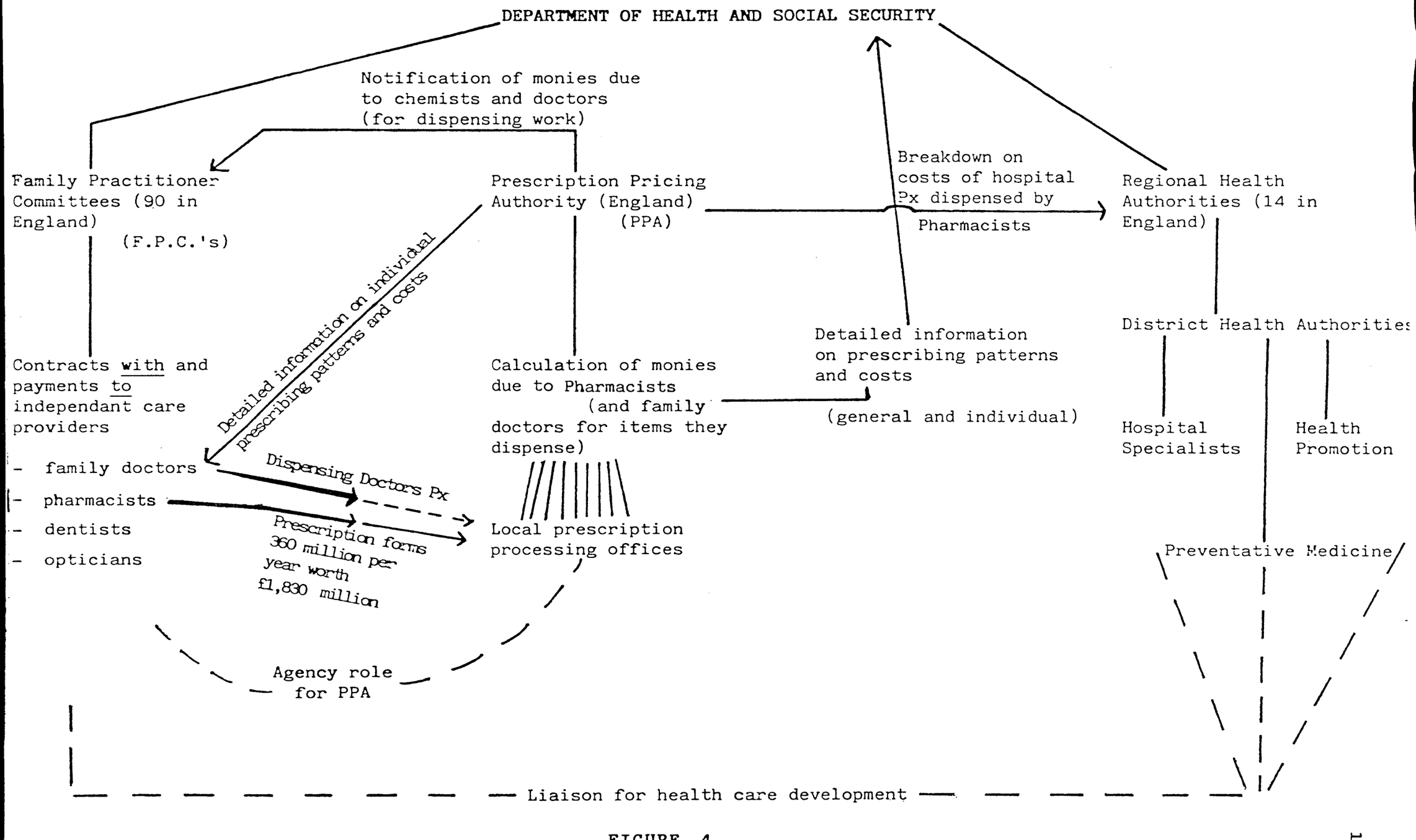


FIGURE 4

E N G L A N D

I. The General Structure (an outline)

a) Funding

The English National Health Service is almost entirely funded by the Government from general tax revenue.

The annual budget is approved directly by Parliament, and controlled by the Secretary of State for Health & Social Services.

Three groups of health authorities report to him:-

Regional Health Authorities
Special Health Authorities
Family Practitioner Committees

This paper is concerned with Family Practitioner Committees and one Special Health Authority: the PPA. The Government ministry (Department of Health & Social Security) also has a vital role in the subject of this paper (see VI).

b) The patient and the doctor.

The prospective patient has only to find a doctor willing to provide him with a basic health care service 24 hours a day, every day of the year. This is the basis of the doctors N.H.S. contract - in his absence he can of course employ a Locum.

The doctors receive pads of prescription forms (no charge) from their local F.P.C. stamped by the F.P.C. with their name and address and national identity number.

In country districts doctors may dispense drugs themselves and any family doctor may at any time administer drugs, vaccinations etc., to patients. There are provisions for a fee to the doctor for the latter for a selected list of medicaments only. Dispensing doctors are remunerated for each dispensing occasion. The assessments are made by the PPA on receipt of the doctors forms.

In England there are 3,700 dispensing doctors.

c) The Pharmacist

A patient may present a prescription from their doctor at any pharmacy in the country. The geographical mobility is particularly noticeable in the big cities and especially London. At the end of every calendar month the high street pharmacist forwards his "parcel" of prescription forms to the PPA for the pricing and checking and information capture operation.

The business of independent pharmacy differs substantially from that in Holland and Germany (see separate sections). A typical pharmacy also deals in toilet requisites, perfumes, baby merchandise, photographic processing, health foods as well as "over the counter" medicines and appliances.

Nevertheless N.H.S. dispensing is a significant proportion of the income of the business, at least of the smaller businesses. The United Kingdoms largest pharmacy enterprise is a "vertically integrated" international business manufacturing drugs and also merchandising a very wide range of consumer goods in addition to those illustrated earlier.

In addition to prescriptions issued by family doctors, pharmacists also receive prescriptions from dentists, who have the authority to order a limited range of dentally relevant drugs, and hospitals. These may be issued because the hospital cannot or does not wish to provide its own pharmacy or because this arrangement is more convenient or desirable for the patient.

Until 1987 there was no control over the distribution of pharmacies. This led to an over provision, and to some extent N.H.S. subsidy, in inner cities, but a shortage in rural and unfashionable areas.

F.P.C.s now must satisfy themselves that there is a need for a new pharmacy. It is expected that there will be a reduction in the number of pharmacies from the present 11,000, as the payment system is weighted against small businesses (but not in rural areas) - (see II below)

d) Family Practitioner Committees

F.P.C.'s contract with independent doctors and pharmacists to provide services, and reimburse them. They maintain registers of local residents using the services of doctors. They have been given an expanded role (1985) in the planning and quality control of the services they cover.

e) Prescription Pricing Authority (PPA)

The PPA, directly funded by tax revenues, receives all prescriptions dispensed in England by independent pharmacists and family doctors. Its role is to provide the Secretary of State with any information required, and to check, examine and price the prescriptions, ensuring that the payments authorised are properly made.

The PPA's assessment is forwarded to the F.P.C., who usually have sums to add and subtract - (see Basis of Paying Pharmacists) before issuing the cheques or bank credits.

II Basis of Payment of Pharmacists (Outline)

The Secretary of State regulates payments by a book entitled the 'Drug Tariff'. This sets out in detail the fees applicable, the main condition for payment and includes 18 main sections detailing prices for many drugs, appliances,* and chemical reagents. As at January, 1988 the Tariff exceeds 300 pages and is extremely complex.

Reduced to the simplest expression the provisions are:-

1. A doctor may prescribe, and a pharmacist dispense, any drug - except that certain drugs (mainly "over the counter" items) are banned.

2. If the price of the drug is shown in the Tariff the pharmacist will be reimbursed that price. If not, the price charged to him (by the wholesaler/ manufacturer) will be reimbursed.

3. A pharmacist will be paid only for Appliances which are listed (with their prices) in the Tariff.

4. A "Labour" fee is paid for every item dispensed depending on

   a) number of items dispensed in a month

   b) the complexity of the task or its urgency, for which additions may be made.

   The structure is complex with 22 different fees for drugs and appliances.

   e.g.

Extemporaneously dispensed special formula ointment	-	£1.73 (extra)
Controlled drug		0.52 (extra)
Urgent (with a call-out)		5.00 to £14.50 according to circumstances

5. Every prescription attracts a "container" allowance.

6. The pharmacist receives an on-cost at a standard rate of 5%.

7. The pharmacists income is then reduced by a discount on his total ingredient costs. This varies from 1.96% for pharmacies below £125 per month, to 9.46% to pharmacies of £39,751 per month or more.

8. Pharmacists may apply to provide oxygen gas cylinders and equipment (which will include a delivery service). Because of this the fee scale is different with a total of 52 different options (including 28 for different times and mileages to the patients home).

All the above calculations are made by the Prescription Pricing Authority and each local F.P.C. informed to make the actual payment.

* Appliances - items such as dressings, catheters, colostomy equipment.

FORM FP34

.DUMMY FPC NAME FAMILY PRACTITIONER COMMITTEE .....19....

TO DUMMY CHEMIST
DUMMY ADDRESS1
DUMMY ADDRESS2
DUMMY ADDRESS3
DUMMY ADDRESS4

ACCOUNT NO. 050

THE FOLLOWING IS A STATEMENT OF THE SUMS PAYABLE IN RESPECT OF DRUGS AND APPLIANCES ORDERED ON THE PRESCRIPTIONS INVOICED BY YOU FOR THE MONTH OF MAY 1987.

NUMBER OF FORMS	1143
* NUMBER OF PRESCRIPTIONS(SDR)	1877
* NUMBER OF PRESCRIPTIONS(ZD)	57

55 ITEMS REFERRED BACK TO YOU OR DISALLOWED FOR PAYMENT HAVE BEEN EXCLUDED.

	£
VALUE OF DRUGS AND APPLIANCES :	
* TOTAL OF BASIC PRICES(SDR).....	3433.71
LESS DISCOUNT @ 7.19 PER CENT	609.93DB
* PLUS TOTAL OF BASIC PRICES(ZD)	202.29
PLUS ONCOST @ 5.0 PER CENT	434.30
TOTAL INGREDIENT COST	3510.32
PROFESSIONAL FEES (INCL 1889 GRADUATED FEES).....	2088.47
ALLOWANCES FOR CONTAINERS	73.42
ALLOWANCE FOR OXYGEN THERAPY SERVICE	350.24
ADJUSTMENT AS A RESULT OF A CHECK MADE BY IN RESPECT OF PRESCRIPTIONS RELATING TO	0.00
TOTAL AMOUNT OF ACCOUNT	11022.45
LESS VALUE OF CHARGES COLLECTED:	
ELASTIC HOSIERY (1 ITEMS)	4.80DB
EXCLUDING ELASTIC HOSIERY @ 2.40 (445 ITEMS) ...	1068.00DB
@ 2.20 (2 ITEMS) ...	4.40DB
TOTAL AMOUNT OF ACCOUNT LESS CHARGES	9945.25
PAYMENT ON ACCOUNT FOR JUNE 1740 PRESCRIPTIONS	
LESS 306 CHARGES.....	7279.34
TOTAL CERTIFIED BY PRESCRIPTION PRICING AUTHORITY.....	£17224.59
PAYMENT FOR ROTA SERVICE	
ADDITIONAL PAYMENTS	
LESS PAYMENT ON ACCOUNT FOR MAY PRESCRIPTIONS	
LESS PROPORTION OF ALLOTMENT FOR EXPENSES OF PHARMACEUTICAL COMMITTEE	
(1) VOLUNTARY LEVY	
(2) STATUTORY LEVY	
OTHER DEDUCTIONS	
TOTAL AMOUNT PAYABLE	

* SDR = STANDARD DISCOUNT RATE ZD = ZERO DISCOUNT

In addition the F.P.C. may involve the pharmacist in a rota for opening on Sundays and Public Holidays for which additional payments are made. They also deduct a sum funding a bureau to check a sample of the P.P.A.'s work (run by the Pharmaceutical Service Negotiating Committee - the pharmacists trade union)

Pharmacies which are more than 2 kilometres from another pharmacy in a rural area may be subsidised by the F.P.C. in order to maintain a viable business (Essential Small Pharmacy scheme).

A schedule showing a "dummy" pharmacists payment schedule (as issued by P.P.A.) is shown opposite.

	Week 1	Week 2	Week 3	Week 4	Week 1 Week 5	Week 2 Week 6	Week 3 Week 7
Pharmacist sends "parcel" to PPA	X X X X				X X X X		
"Parcel" arrives at PPA	X X X X	X X			X X X	X X	
Registration procedure PPA staff open "parcel" for "invoice"	X X X X	X X X			X X X X	X X X	
"Invoice" entered on main frame for advance payment	X X	X X X X			X X	X X X X	
"Parcel" docketed (see text page,.)	X X X	X X X X	X X X X	X X	X X X	X X X X	X X X X
"Parcel" numbered (special machine) (see text page 22)	X X	X X X X	X X X X	X X X X	X X	X X X X	X X X X
"Parcel" registered on main frame (confirms number of forms numbered)		X X X X	X X X X	X X X X		X X X X	X X X X
Data Entry V.D.U. operator keys all standard items - code x quantity		X X X	X X X X	X X X X	X X X X	X X X	X X X X
Senior V.D.U. operator keys all "specials" - code x quantity		X	X X X X	X X X X	X X X X	X X X	X X X X
Main Frame Verification a) On-Line Completion Specific Checks on unusual quantities, doctors etc.			X X	X X X X	X X X X	X X X	X X
b) Oxygen - separate pricing operation on main frame			X X	X X X X	X X X X	X X X	X X X
Main Frame Pricing Calculate price for every item of data captured.			X	X X X X	X X X X	X X X X	X X
Final Accounts a) Double check on high-cost medicaments				X X X X	X X X X	X X X X	X
b) Adjustments necessary to any accounts				X X X	X X X X	X X X X	X X
c) Final schedule produced by main frame (by F.P.C.)							X X
d) Transmit schedule to F.P.C.							X X
e) Range checks (variation in average price per medicament) e.g. variation above 50p difference to previous month							X X
f) Full checks on any major inconsistencies (full print required)							Subject to work flow

MONTH 1

MONTH 2

Prescription Pricing Authority Pharmacist Payment Operating Cycle

FIGURE 5

III THE PRESCRIPTION PROCESSING SYSTEM

Outline

The system works on a calendar month cycle. The number of items claimed by a pharmacist is logged on to the PPA's main frame to provide an advance payment. Every item is then manually read and captured on disk, and a full total available approximately 6 weeks from the end of dispensing period. This, less the advance, is added to the next months advance.

The schedules are forwarded to the Family Practitioner Committee for payment (with additions or subtractions as necessary) on the first of the next calendar month.

See Work-Flow Diagram Figure....5.....

Detail of System

Pharmacists parcels are despatched to the PPA in the first five working days after the end of the calendar month. Individual doctors are grouped together and special forms (such as hospital prescriptions) placed together. Most parcels arrive by post in any packing format chosen by the pharmacist.

Registration

The PPA registration staff remove the form detailing the pharmacists. claim (X items, Y forms, Z Charges*) and log the figures on to the main frame.

The parcel is then "docketed", which, for example, involves removal of paper clips, staples etc from forms, sorting special forms into their correct place and checking the sorting of major groups of doctors. Forms are then numbered within the account on a machine specially developed for the PPA. This is necessary to link each form to its computer record. The maximum speed of the machine to date is 14,000 forms per hour, the PPA average being 7-8,000. The last form number in each group (no charge/tax etc) is then logged on to the main frame.

Data Entry

The prescriptions then pass to Data-Entry.

The V.D.U. operator follows this sequence:-

Preliminary

1) enter pharmacy contractors code and details checked.
2) group type (no charge/tax etc)
3) form type (ordinary, hospital, drug addict, military prescription form etc.)

* prescription charges or "tax"

4) Doctors identity number (causes name and address to be displayed for confirmation)

5) Form Number - this is automatically displayed.

Medicament

6) Identify the item and strength
formulation
pack size
and key individual code

7) Key quantity

8) Key any additional information required e.g. extra fee
broken bulk
generically prescribed
wrong charge group

The average input for a V.D.U. operator working a 7.4 hour day is 2,600 (national figure). A bonus scheme is in operation but many outputs are far above the bonus maximum (2,900), 4,500 - 5,000 are regular and the highest individual daily total in that time known to the author being 7,175.

The stage 1 V.D.U. operators, known as General Pricers, complete approximately 97% of the prescriptions. Any complex, unusual or problematic prescriptions are referred to a Senior V.D.U. operator (known as Query Pricer), who acts as a first-line supervisor.

Stage II

The Query pricer has been trained to price extemporaneous preparations, unusual items, complex prescriptions for appliances etc. She (or occasionally he) has access to a wider range of information on the Data Entry system*, and is trained to use pharmaceutical reference books, manufacturers literature etc. She may reject a form because

a) the information given is insufficient to calculate an accurate price

b) the information given is inadequate to provide prescribing data

c) the item is not permitted

d) the form is irregular (illegal, suspicious etc.)

Her assessment is checked by an Executive Officer before the form is returned to the pharmacist, (a), b), c),) or in some cases to the Family Practitioner Committee ((c), d)) The Query pricers average input nationally is approximately 400 individual entries per day, although individuals have been known to exceed 800 occasionally. A proficiency allowance is payable (not geared to output).

Technical Information

Data entry is carried out on key to disk mini-computer systems (processor controlled keying). The standard format is for 30 General Pricer and 6 Query Pricer terminals to each system, with one Supervisor.

* Drug Master File, Appliance File

All "General Pricer" items are assigned a 'velocity' code with a length directly proportional to its popularity. Common preparations have two digits, up to a maximum of five for those which are relatively uncommon.

A card index is used to ascertain codes. The numeric keying requires only one hand, leaving the other free to turn the prescription forms and consult the card index. Experienced operators rely on their memory to a substantial degree.

The query pricer, has access to the master files to read the 9 digit codes for less common items. All codes contain check digits to enable the computer to identify any obvious keying errors. The codes change infrequently which promotes accuracy by the operators. Specialist staff at the Authority's headquarters update the prices as necessary. Approximately 87,000 different codes are available.

The Authority calculates that an additional key stroke to each prescription item could cost an additional £0.25 - £0.5 million per year. Repeat keying has therefore been reduced to a minimum - for example, special function keys may be used to input common quantities (30, 60, 100) and selection of preliminary information on a form is by a single key stroke.

Quality Control

2% of a V.D.U. operators monthly output is extracted during data-entry for this purpose. The average error levels are 0.04% (payment to contractors) and 0.65% (all information on a prescription form including items only for analysis.)

Main Frame

The prescription information keyed at data-entry is transferred to a Honeywell main-frame for pricing.

All velocity codes are first converted to 9 digit codes. The records are passed against the Drug and Appliances Master files to enable checks to be carried out and prices calculated.

On-Line Completion

The prescriptions pass to a section operating main frame V.D.U.'s. Unusual quantities, expensive items, missing doctor numbers etc., are printed out and the record checked and amended as necessary.

Oxygen

Oxygen is reimbursed on a different system to other medication and applicances. The system requires individual records of patients to be maintained. However, there is currently an agreement between the Department of Health and British Medical Association that the PPA will not retain on computer, information identifying individual patients. This makes it necessary to duplicate the manual record and a computer record of costs.

Pricing

The main frame now applies the prices to the drug codes and calculates the fees, container allowance, oxygen and other remuneration due to the contractor to give the final total.

Reconciliation

Final checks are now done before the schedules run. Every prescription costing more than a certain sum is printed out and re-checked, every form for return to the pharmacist, is checked off to make sure the right forms have been included.

Any adjustments required are then entered. These may be for the current month or for earlier months.

The schedules are then printed and dispatched to the Family Practitioner Committee.

The pharmacists accounts are monitored by the main frame and any variations in average cost above £0.50 per item are printed. Reconciliation staff review the pattern of costs and consider the need for a full check.

Storage

The parcels of prescriptions are then retained in storage for about 2 years (government policy), but may be recalled by the Authorities auditors (for sample checks) or checks by the pharmacists Trade Union, (the Pharmaceutical Services Negotiating Committee).

At the end of the storage period they are shredded to preserve security and patient confidentiality.

Fraud/Forgery and other incidents

PPA staff, particularly at Data Capture, are asked to watch for signs of criminal activity. However, at the speeds currently achieved, it is not practical to expect this to be practised systematically and results may only come from scrutinising different neighbouring accounts. There is no provision for staff to specialise in scrutinising the forms for any

suspicious indicators, possible fraud by members of the public or by professionals, or signs of drug abuse (see also Page).

No figures are available to show what impact such a system might have if it were set up.

IV Information Services

The data input of processing is analysed for a wide range of statistics and is manipulated in a variety of ways to produce the required information. The PPA's role will widen in the near future as it assumes responsibility for work currently handled by the Department of Health (Ministry).

Approximately 43 different reports in drugs and appliances and 24 different reports on pharmacies are routinely available.

The information of primary interest here, however, is none of these. Speedy and comprehensive analyses of prescribing data are the principal reason for computerisation of the Authority and the subject of considerable debate, development and interest.

The key to providing prescribing data is the six-digit number allocated to each Family Doctor. As previously described this is a critical component of data-capture and the PPA takes every possible opportunity to enhance this accuracy. (see also Appendix I).

Initially the manual information system was transferred to a computerised system without major enhancement. Although volume was increased and production was speeded up the system was felt to require a major redesign.

Prescribing Information System

From April, 1988 a radically new system comes into operation using the PPAs captured data. The new system is divided into 3 levels. The old and new systems main components compare as follows:-

Old System (Prescribing Data 2 + 8 PD2/PD8)	New System Prescribing Information System
Data collected on a monthly basis	Data collected on a quarterly basis
PD2 (summary) 1 months data, produced annually	Level 1 (summary) 4 analyses per year for each quarter i.e. 100% analysis
PD8 (Detail) High cost doctors or by request	Level 2 (detailed comparison) High cost doctors every quarter or by request
In form of tables	Level 3 (detailed catalogue on request) Uses bar charts etc and tables
Presentation Quality of print not highly regarded	Presentation High quality laser printer and well spaced presentation.

Examples of the new system are shown in Appendix IV.

The Level 1 report is the final version. The Level 2 & 3 samples have mock-up data displayed and some data therefore appears anomalous.

National and area (F.P.C.) summaries continue in production in the same format as previously, but comprehensively instead of one month per year.

V COST OF RUNNING THE PPA

The annual budget of the Authority is nearly £20 million. The total prescriptions processed annually number about 350 million at a total cost of £1,830 million.

The computerisation of the PPA cost approximately £11 million in capital terms including £3.5 million in 1987 for a large information processing system.

The computerisation of pharmacists payments is now proving an economic investment, without taking into account the benefits of comprehensive data capture. This is partly due to the increased productivity by "pricers" (an increase from manual work by over 20%) **, as well as abolishing the manual calculation operation.

The Authority's cost ratios are currently;

Revenue costs only

$$\frac{\text{Processing Cost}}{\text{Total cost of medicines and appliances}} = \frac{\text{£20 million}}{\text{£1,830 million}} = 1.09\% \text{ of turnover}$$

$$\frac{\text{Processing Cost}}{\text{No of prescription items}} = \frac{\text{£20 million}}{\text{350 million items}} = 5.7 \text{ pence per item processed}$$

If the capital costs of computerisation are included, depreciated over 5 years (the expected life is longer) the costs rise to 1.20% of turnover and 6.3 pence per item processed.

** Productivity has risen by considerably more than 20% since computerisation but there are numerous diverse factors as well as the impact of the computer assisted operation.

VI A. Prescribing Monitoring and Counselling

The English Regional Medical Service (RMS)

The Department of Health Regional Medical Service employs 50 full time Medical Officers, 154 lay support staff, and 470 part-time doctors and nurses.

The work of the RMS falls into two broad categories.

a) referee work for social security and employment purposes,

b) liaison work with Family Doctors.

Referee work involves "advising as to incapacity for work and on diagnosis and treatment". The RMO therefore examines and reviews the cases of people claiming social security benefits and advises the Department of Employment on suitability for types of employment and any need for rehabilitation. This work takes up about ⅔ of the RMO's time.

Liaison work involves

a) a routine visit to every G.P. once every 2 years

b) advising G.P.'s on practice, premises and organisation

c) counselling G.P.'s about their prescribing when necessary.

d) counselling G.P.'s about breaches of the Misuse of Drugs Act when necessary.

Published statistics show that one visit in 9 is to discuss prescribing and controlled drugs. It would therefore appear that about 5% of an RMOs work is related to influencing the cost and quality of prescribing.

However the RMOs can manipulate their workload by making greater use of the part time assessors. This is important in the context of the P.P.A.'s Information Service which will generate analyses 3 times more frequently in 1988. The workload on the manual information service should have been 1,100 analyses of high-cost doctors per annum, but the PPA has often had problems completing that number under manual operation and some analyses are too old to be useful for discussion and are therefore discarded. This is particularly a problem where a General Practitioner is unco-operative and may wish to ridicule the analysis.

The RMO requires considerable skill in order to conduct prescribing counselling successfully. He has to overcome the fact that this message is basically unattractive in comparison with that of drug company representatives. He has to argue for reducing prescribing frequency or volume - which may antagonise patients and prescribe drugs with more difficult names (generic prescribing). He has no glossy literature, samples or hospitality to offer.

The time devoted to a visit will vary considerably, depending on the size of the practice, the minimum being half a day for preparation, travelling, interview and report.

Doctors may have high prescribing costs for a number of reasons - including of course a high number of patients genuinely requiring expensive or large volumes of drugs or appliances. Younger practitioners may be overwhelmed by pressure from various directions, control of repeat prescribing may need to be tightened within the practice, the high costs may show only on selected therapeutic groups. Some practitioners may make a temporary improvement and then relapse. Counselling them may prove particularly stressful and difficult.

Selection for a post as an RMO is dependant upon a minimum of 5 years General Practice experience. Induction and training for the counselling role is largely peer group discussion and accompanying an experienced RMO. A special counselling seminar a few years ago was not considered a success.

In October, 1987, 2 additional RMO appointments were made for specialists in prescribing counselling. Each post covers one Regional Health Authority area. It is hoped to forge links with departments of Clinical Pharmacology and both appointees are taking diplomas in pharmacological medicine to strengthen their skills.

The higher staffing level should make it possible to follow up a doctors prescribing pattern routinely - if only to congratulate!

At present a high cost doctor may fall out of the standard analysis by chance or by a marginal improvement (e.g. 25% above, down to 23% above average), but no further action would be taken under the manual analysis system.

Success of Prescribing Counselling

An internal short term study has demonstrated that the RMOs prescribing counselling has created very substantial savings. It is not known at present however whether these will be permanent, or whether the period selected was representative. It is likely that some R.M.O.s will be less successful with their interventions and may need more assistance, and training, to cope with the stresses and develop better counselling skills.

The Future

There is current debate about whether prescribing counselling should be extended to all Family Doctors or confined, as now, to those who prescribe excessively or at high cost. The argument for extension is that a 10% improvement by the 85% of doctors near the norm would save more money than (say) a 30% improvement by high cost practitioners.

A number of research studies are in progress or have been completed which are relevant to this debate (see V C below). The White Paper will introduce a number of significant developments for the RMS (see V D below)

VI B. MONITORING OF DRUG ABUSE

1. Home Office Drugs Inspectorate

Role The Home Office has a preventative role - to prevent drug misuse and intervene to reduce it. They start by analysing pharmacy drugs registers and examining prescription forms. If it appears that a doctor is using Controlled Drugs excessively they visit him and offer advice. Alternatively an RMO could be asked to visit if the patient appears to be using a genuine medical condition to justify excessive requests for drugs.

In more serious cases the Inspectors may issue a written warning or, exceptionally, take a case to tribunal to enable the Home Secretary (Minister) to ban a doctor from prescribing Controlled Drugs.

Sources of Information

Every Pharmacy must maintain a register listing all controlled drugs dispensed under schedule 2 of the Misuse of Drugs Act. This is a prime source of information about schedule 2 drugs (such as diamorphine, cocaine, morphine, pethidine) prescribed by doctors. Information about misuse of schedule 4 drugs* is extremely subjective and largely depends on the interest of professionals in the problem in a particular locality. Liaison with drug treatment centres is extremely good but their information derives from drug misusers and may therefore be of doubtful use.

Police Drug Squad Officers may monitor prescriptions while they are visiting pharmacies to inspect the Drug Register, but this is an occasional activity, and if a force has to staff a major inquiry the DRUG SQUAD may cease to exist temporarily.

The problems of obtaining reliable information are graphically illustrated by the problems experienced by the Advisory Committee on Drug Abuse which recently advised the Home Office that Temgesic ** did not require transfer to Controlled Drug status. They advised from the data available to them but television researchers subsequently showed up its considerable limitations and cast doubt on the decisions derived from it.

* Schedule 4 drugs - mainly 33 benzodiazepines

** Buprenorphine

Extent of the problem of Drug Abuse

The UK is the only country to use heroin (diamorphine) for medicinal purposes. However no significant proportion is (apparently) diverted to the black market. The problem relevant to this paper relates to Schedule 4 drugs (mainly benzodiazepines) where it is believed that the major proportion of illicit use comes from the black market resale of originally legitimate prescriptions. The problem seems to have worsened significantly in the last one to two years. Excluding cannabis, benzodiazepines probably constitute 10% - 20% of the total misuse level in England.

Notification of Addicts

Doctors are required to notify the Home Office of anyone whom they suspect of being addicted to schedule 2 drugs. Doctors do not meet this requirement conscientiously, and such addiction is often identified from the Drug Register (in a Pharmacy).

Prescription Pricing Authority

There is no liaison between the Authority and the Inspectorate. The only link comes when an inspector may request sight of prescriptions to deal with a particular case.

PPA staff are encouraged to watch for suspicious forms but there is no regular monitoring system, or special training. A Prescription form is scrutinised for an average of 13 seconds during which time an average of 20 pieces of information have to be assimilated and keyed. It will not be a surprise therefore if signs of drug addiction are overlooked. They might be signalled on a detailed prescribing analysis, but this does not indicate the patient, and linking the two routinely is not currently practical without a heavy additional investment of manpower.

VI B. MONITORING OF DRUG ABUSE / continued

2. Service for Drug Misusers (Health Circular (86) 3.)

This circular announced additional funds for the expansion of services for drug misusers and sets out arrangements for monitoring them.

The establishment of prevalence of drug misuse is considered important and the circular encloses a short guide on the subject. This is important in the context of this paper because of the volume of prescriptions which are for addicts or are diverted to the black market.

Two relevant points arise in the guide;

a) Notification of narcotic addicts to the Home Office (1.1.1.)

"In theory all doctors should notify any addicts whom they attend, but not all do. There is a delay between initial use and first notification."

b) Prescriptions of psychoactive drugs (1.1.6.)

"Central records are kept of all NHS prescriptions dispensed by retail pharmacists. Statistics on prescriptions do not indicate how drugs are actually used, nor whether there are any problems. The only information which might point to a problem would be that which indentified unusually large quantities or numbers of prescriptions issued for particular drugs (e.g. barbiturates). It is cumbersome to obtain such information through central sources. It is more profitable to contact local pharmacists directly."

Contacts: Prescription Pricing Authority,
Local Pharmaceutical Committee.*

Prescription Pricing Authority

The PPA has not been directed to take any initiatives to provide information about likely narcotics addicts or provide statistics on psychoactive drugs. However when requests are received from individual agencies the PPA responds positively subject to approval by DHSS.

The Authority has no specific resources for such work but can accommodate localised initiatives.

* sub committee of Family Practitioner Committee

VI C) PRESCRIBING TRENDS AND DRUG USAGE

Some Research Papers and PPA Analyses

i) Prescribing patterns in High and Low cost practices in the Greater Belfast area March, 1985.

Dr. H. McGavock
Prescribing Information Unit,
DHSS,
N. Ireland.

Dr. McGavock found

a) The main factor giving rise to the higher cost of high cost practices was the frequency of issue of prescriptions. The issue of more expensive brands of drug or larger volumes per prescriptions also played a part, though a less significant one.

This finding applied to both symptomatic groups of drugs and to systematic ones.

b) There is a correlation between prescribing costs and patient : doctor ratio and availability.
i.e. practices with smaller patient/doctor ratios appear to have more surgery sessions and higher prescribing costs.

c) Prescribing patterns are consistent throughout the different drug groups in any level of practice.
i.e. a high cost practice would prescribe copiously for thyroid drugs for example, as for laxatives and cough bottles.

These summary findings are supported by a more detailed analysis, which also revealed some interesting facts right across the spectrum of high and low cost prescribers. For example, non-steroidal anti-inflammatory drugs (NSAIDs) little used in general practice before 1965 because of toxicity are now used at least 50% as frequently as minor analgesics.

Dr. McGavock asks is this science or market penetration? What we may also ask of the therapeutic benefits and the cost to the nation?

ii) Information Services Project
Herriott-Watt University, Unit for research into Drug Usage, 1982-1984.

The University carried out a project to help the PPA develop prescribing information for Family doctors. "Live data" was provided direct to doctors in 3 areas, at a summary level and a detailed level. The amount of interest by the doctors in self-examination was measured and also the modification (if any) in their prescribing patterns. There was no counselling of any sort by outside agencies.

The level of interest was very strong indeed. Three-quarters of group practices and half single handed practices asked for more information after the first unsolicited analysis. After receiving a second analysis, 62% of group practices and 24% of single-handed practices requested a third analysis. Each extra analysis examined prescribing in greater depth, and most of the interest was in specific preparations.

Modified prescribing patterns were also found initially. However, at the end of the project, changes in prescribing patterns between the doctors who received analysis and a control group had disappeared.

It seems reasonable to deduce that the English Family Doctor is well motivated to improve the quality of his work, but that without exterior reinforcement his ability to make self-audit effective is very limited.

VI C. PRESCRIBING TRENDS AND DRUG USAGE /continued

iii) **Drugs Liable to Misuse**

As a result of a discussion with the Drugs Inspectorate I felt it would be profitable to study this topic. It seemed likely that the data available to the PPA could augment the sparse level of intelligence available to the Inspectorate.

I therefore chose to analyse Buprenorphine (Temgesic), Diamorphine and Cocaine prescriptions. Temgesic was selected because of its current popularity as a drug of abuse. Diamorphine and Cocaine were chosen because Family Doctors may prescribe them for organic disease but not for use in addiction. Such prescribing would be illegal.* It seemed to be a useful idea to provide some corroborative data on the concept that "medical" diamorphine and cocaine are not being misused.

I linked Diconal tablets with Diamorphine tablets. It does not of course contain diamorphine (its constituents are dipipanone and cyclizine) but it shares the distinction of being forbidden to Family Doctors for use in addiction. I therefore felt it would provide relevant information to link them together.

It would be possible to bring the analysis down to individual prescriber level, but for the purpose of this exercise I felt it to be more appropriate to work at FPC level.

To illustrate the possibilities I chose two different methods, and four different parameters.

a) Temgesic - this was analysed by computer by the number of occasions prescribed in 3 FPCs by FPC population.

b) Diamorphine and Cocaine preparations - this was analysed by physically examining prescriptions extracted from pharmacists accounts and shows the number of occasions the drugs were dispensed per doctor in the FPC.

In considering b) an allowance has to be made for 'leaked' data, but generally this would not be serious enough to drastically alter the figures (except in central London) unless some systematic (probably criminal) activity were in progress.

The divisors used may be capable of improvement, but I feel they are at least a useful starting point.

* Since this paper was written the Regulations (S.I. No. 866) have permitted Family Doctors to prescribe limited quantities of Diamorphine, Diconal and Cocaine from June, 1988.

Comparative Usage of Buprenorphine (Temgesic)

As an example of the information which could be of use to narcotics control agencies, the following exercise has been undertaken. Temgesic was chosen because it is the latest popular drug to be abused.

1. All prescriptions written by G.P's in three F.P.C's in one month have been logged by the P.P.A's information system.

2. The registered number of people registered with each F.P.C. were provided.

3. The total number of prescriptions and the total number of tablets were logged.

4. The following ratios were calculated:-

   a) tablets per registered person in the F.P.C.

   b) prescriptions per registered person in the F.P.C.

5. The results are as follows:-

F.P.C. A	Number of registered persons	- 834,708
(Inner London)	Number of tablets dispensed	- 16,991
	Number of prescriptions	- 269
Ratios	- 1 tablet per 49 people	
	- 1 prescription per 3,103 people	
	- Tablets per prescription - 63	
F.P.C. B	Number of registered persons	- 437,589
(Northern)	Number of tablets dispensed	- 29,855
	Number of prescriptions	- 576
Ratios	- 1tablet per 14 people	
	- 1 prescription per 759 people	
	- Tablets per prescription - 51	

F.P.C. C (Rural)	Number of registered persons	- 586,367
	Number of tablets dispensed	- 18,657
	Number of Prescriptions	- 394
Ratios	- 1 tablet per 31 people - 1 prescription per 1,488 people - Tablets per prescription - 47	

Conclusion

The result seems most surprising. People in a Northern F.P.C. consume 350% more Temgesic than an Inner London area.

People in a rural area consume 50% more Temgesic than the Inner London area.

However, there is a prima facie a higher level of comsumption on average by the people receiving Temgesic in London. This is a slightly misleading average because examination of the individual tally shows twice as many persons in F.P.C. B Northern receiving 100 or more tablets as in F.P.C. A London (120 to 64) and only slightly less than London in F.P.C. C (53).

Footnote

2 prescriptions ordering 20 Temgesic Ampoules (each) were ommitted from the figures for F.P.C. A. The comparison deals only with Temgesic tablets.

Comparative Usage of Diamorphine and Cocaine Preparations

Scope

8 FPCs are analysed showing the number of preparations dispensed per doctor, and the volume of the drugs dispensed per doctor registered in the FPC.

The different preparations were

1. Diamorphine ampoules
2. Diconal and Diamorphine tablets
3. Elixirs of diamorphine and cocaine

Results

1. There are dramatic variations in the total volumes dispensed per general practitioner in different areas.
2. The variations between neighbouring FPCs may be great.
3. There appears to be a considerable degree of substitution between the different presentations.

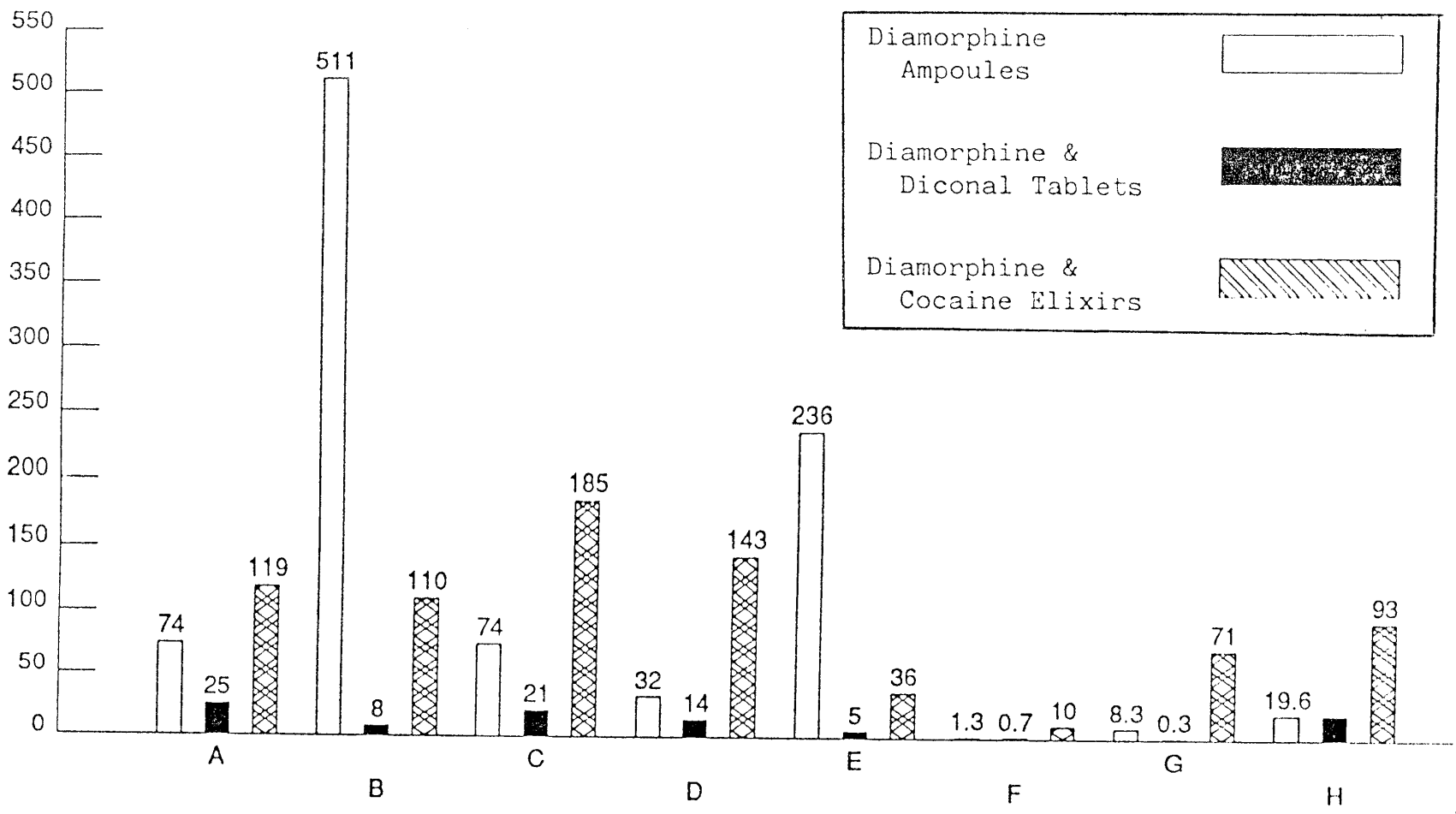
Comment

How may these differences be explained?

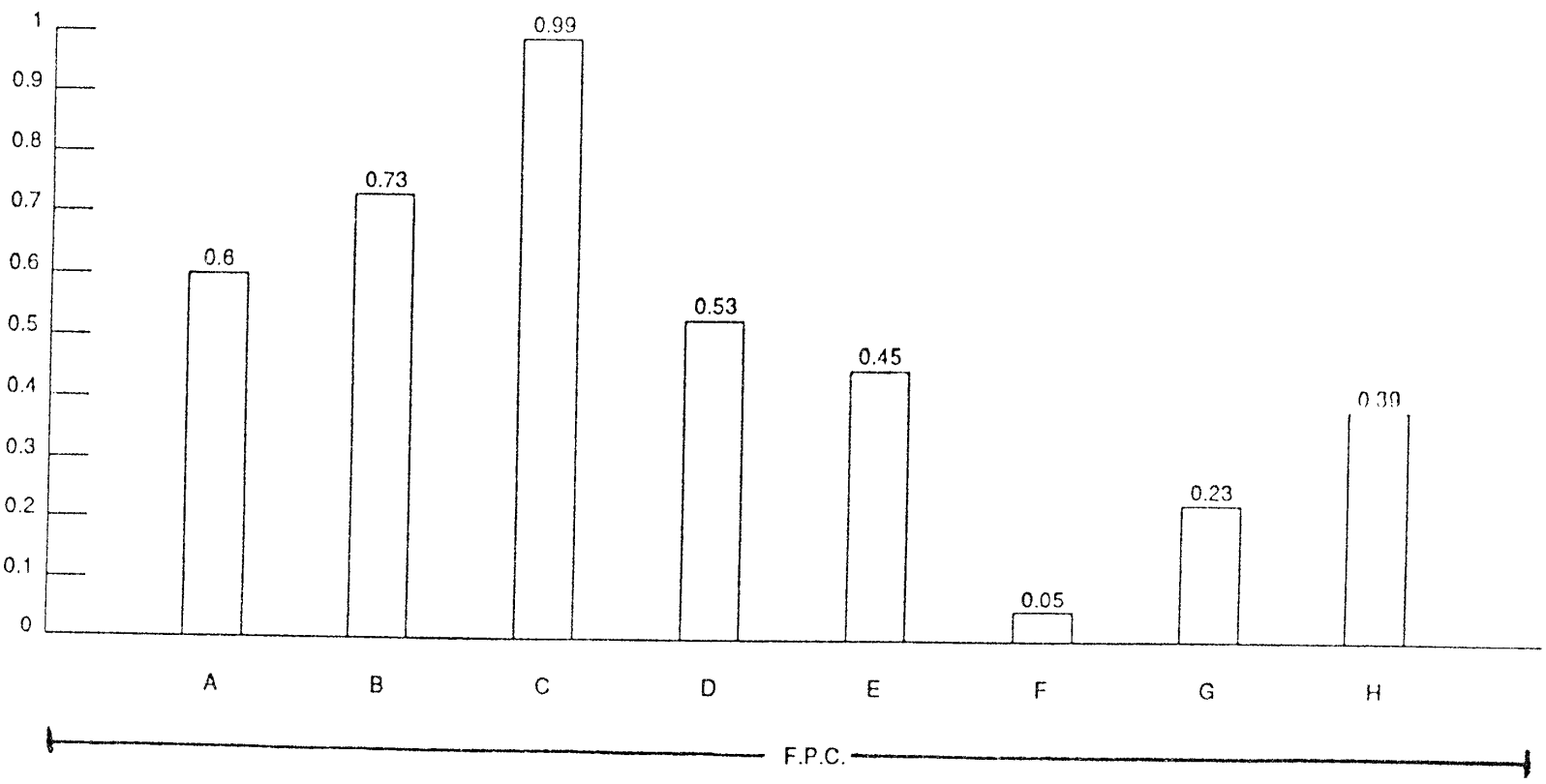
1. Are there great variations in clinical need around the country - even between neighbouring FPCs ?
2. Is clinical practice drastically different in different localities ?
3. Is there a significant level of unappreciated drug abuse in the community from prescribing controlled drugs ?
4. Are large numbers of prescriptions stolen and concentrated thereafter in one area ?
5. Are there a number of "rogue" professionals who are contributing to this variation ?

I am not qualified to provide the answers to these questions but I feel the results of this study requires that they be asked.

Levels of certain Schedule 2 drugs dispensed in 8 FPCs per Family Doctor for one month



Numbers of prescription items dispensed for certain schedule 2 drugs in 8 FPCs per Family Doctor for one month



VI D. PROMOTING BETTER HEALTH

(The Governments programme for improving Primary Health Care)

The White Paper published November 1987 has a number of proposals which impact on the subject matter of this paper:-

1. It recognises the motivation of the medical profession towards improving the quality of prescribing and restraining the costs.

2. It notes the considerable interest in self-audit of prescribing which will be facilitated with the PPA's new Information system, but thereafter prescribing habits should improve.

3. Pharmacists will receive an allowance for monitoring patient records for the elderly and the confused who are on long-term medication. This will be regularly reviewed.

4. Family Practitioner Committees will play an important role by, for example; -

   - encouraging economic and effective prescribing with independent medical advice.

   - fostering peer group discussion.

   - encouraging the development of repeat prescribing control systems and practice formularies.

5. The RMS will continue to carry out its prescribing counselling function and visits to high cost doctors will increase.

6. A co-ordination centre is planned to foster local developments on formularies, drug evaluation etc.

Comment

The medical profession has willingly co-operated with plans to improve prescribing cost and quality. This is essential in preserving their independence and recognises the political necessity to take further steps to restrain costs as well as improve quality.

In the wider role set out for FPC's in 1985 they were given planning responsibility but access to using the data produced (by the PPA for example) has been delayed, partly by negotiations with the doctors, partly by shortage of resources. At present FPC's are not staffed or equipped to assume the leadership role set out in the White Paper.

The role of the RMS will also be enhanced, and if the initiative of appointing specialist prescribing RMO's is successful, presumably this feature will be extended round the country. However RMO's are difficult to recruit and this could hinder the effective implementation of widespread prescribing counselling. The other proposals itemised above will also impact on the RMS. The RMS staff could be called as the independent medical advisers to the FPC's. The role to be played by the FPC's could leave the RMS with the problem of counselling the "hard cases" who have not been influenced by informal advice at FPC level.

P A R T III

HOLLAND

HOLLAND

I THE GENERAL STRUCTURE

Funding

Holland is divided into 12 provinces and 850 local councils. Both have administrative and executive powers in health care. The National government is responsible for providing services which private institutions have not provided and increasingly plays a regulating role.

The private sector plays a major role and the public sector is largely decentralised. Thus the Minister (for Welfare Health and Cultural Affairs) and his staff are responsible for overall policy and monitoring quality, and resolving complaints. A state inspectorate reports to him for that purpose. Six other Ministries are also involved with health care to some extent.

The Minister is assisted by 5 advisory bodies namely:-

a) the National Council for Public Health

- advises on developments and organisational and functional problems.

b) the National Board on Hospital Facilities

c) The Health Council

- advises on research and scientific problems

d) The Health Insurance Fund Council

- Advice to government, management of funds and approval of agreements between funds and other contractors (hospitals, doctors etc.)

e) The Central Body for Health Care Charges

- Examines budgets of health care professionals and hospitals, and fixes charges and fees (including those in private practice).

About 70% of the Dutch population are insured with a health insurance fund. This is compulsory for anyone earning below 49,150 fl (approximately £17,000) and some other specific groups. The premium is paid by all those in this category who are in paid employment. All dependants are covered by the contributions of the insured person. Old age pensioners insure directly with a fund as do students and self-employed (8%)

Employers and employees share the premium equally (total 9.8% of wages) the payments going via the employers industrial association to the General Fund.

Private insurers cover about 30% of the population.

HOLLAND

The Health Care Structure as a Diagram – The Main Components

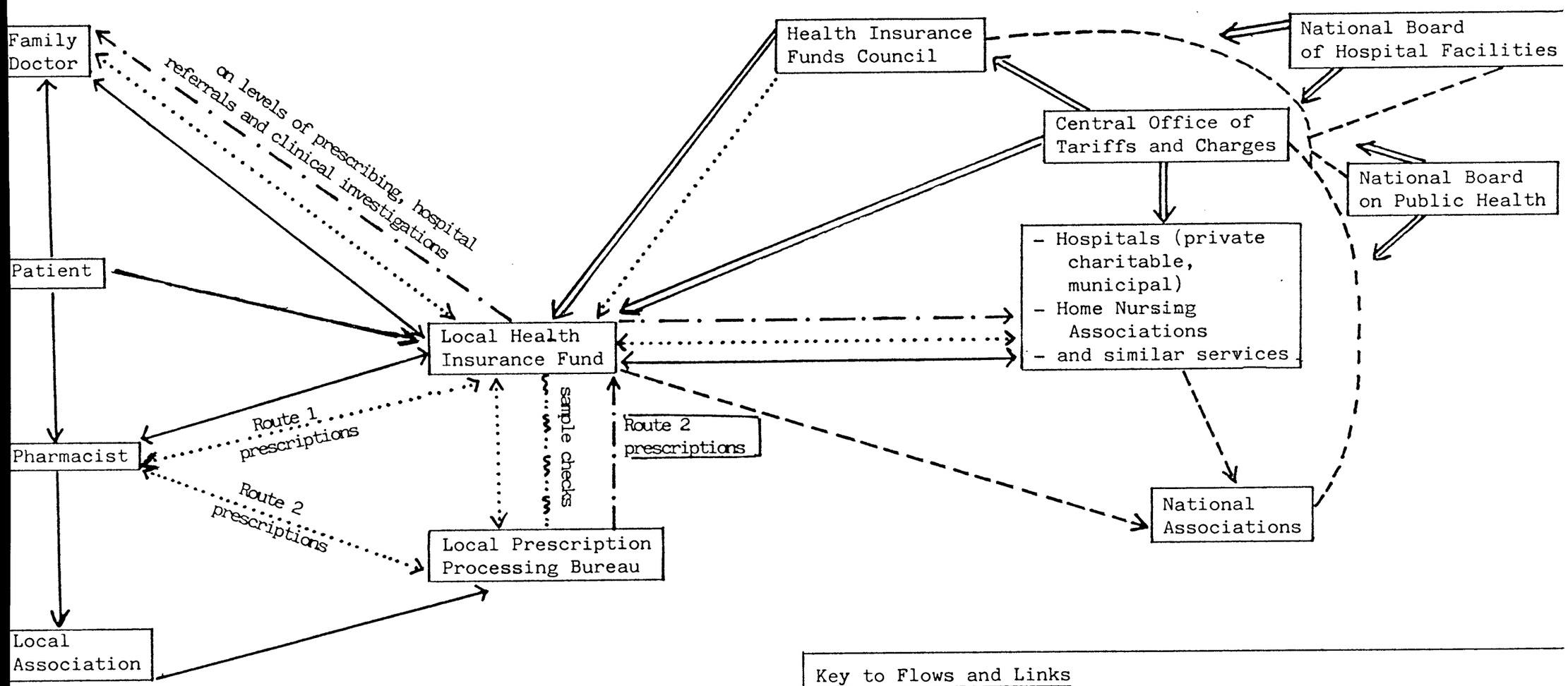


FIGURE 7

Health expenditure is rising faster than is acceptable, and Holland has the highest prices for drugs in Europe. This is generating considerable political pressure to make doctors more accountable and co-operative in controlling costs. Some fundamental changes have been agreed but are currently being delayed because the independent specialists are in dispute. The anticipated changes are:-

1. Limiting the length of treatment allowed on a prescription

2. Introducing generic substitution.

3. Raising capitation fees and abolishing fees for consultations or issuing prescriptions.

4. Introducing a range of penalties to make it possible to deal flexibly with high costs and other problems created by some doctors.

It is hoped that this will help to restrain costs and prevent some abuse (such as prescribing for 6 months at a time).

The Patient and the Doctor

The patient covered by a statutory health insurance fund registers with a doctor of his choice, provided he is in contract with the same fund. The patient may insure with a fund outside his immediate locality, so an element of competition between local funds may exist.

Holland currently has 6,000 family doctors, 1,200 of whom do some of their own dispensing. The distribution is uneven, there being no control of the doctors freedom of contract. They are responsible for comprehensive and continuous cover for their patients. There are few agencies providing locum services so Family Doctors generally have regular gatherings to organise locum cover and discuss other matters of common interest.

Doctors have their prescription forms printed to their own design, including their personal details and identity number. The printing company advertise on the form and the forms are supplied free. The identity number (6 digits) indicates speciality, locality, type of practice.

Members of the public may also refer themselves directly to specialists who have consulting facilities in the community, who have similar freedom of contract.

Computers are not widely in use among doctors - possibly only one in five to one in ten.

The number of drugs available on prescription is very limited by comparison with both England and West Germany - only about 4,000 and Dutch doctors have a reputation, which appears to be borne out by statistics, of being reluctant prescribers.

The Pharmacist

Patients register with a pharmacist and may only obtain Health Insurance medicaments from that pharmacist. He must be in contract with the same insurance fund. The Dutch pharmacist has a particularly strong relationship with his patients; advising and counselling on the use of medicaments.

He will normally check the individuals drug record and look for any contra-indications in prescribed drugs. 80-85% of the population use a pharmacist - the remainder using only dispensing doctors.

Pharmacists are responsible for storage of prescription forms for 5 years which are returned to them after processing is complete.

In Holland there are 2 High Street businesses which occupy the position of one in England. The "chemist" sells a variety of goods including perfumes and drugs which require no prescription (such as aspirin).

The pharmacist dispenses medicines and appliances and sells items of a health care nature (such as health foods).

The majority of pharmacists have a computer for business use (probably 70% but variable in different areas). Naturally the patient drug record is held on it and the label for the bottle generated automatically.

The drug record information on the pharmacists computer can be used as the record for pricing and many pharmacists submit computerised data direct to the Health Insurance Funds for reimbursement of prescriptions.

Others use specialist bureaux for this purpose (see below and prescription processing system)

Health Insurance Funds (Ziekenfonds)

The Funds are statutory bodies and there is one for each locality with a small number for special groups (such as Inland Waterways workers, who have no permanent residence) They receive funds from a central general Fund, and most statutory expenditure on health care is controlled by them.

They are based on identifiable local communities; e.g. Zwolle - market town in an agricultural area - 169,000 population insured, 113 family doctors, 25 pharmacists, 75-80,000 prescriptions per month.

At present there are 50 funds. There have been some amalgamations of small ones, such as those serving the off-shore islands.

All the Ziekenfonds employ professional advisers, varying from sharing a doctor between very small funds to employing 2 or 3 doctors and a pharmacist. In the southern province of Limburg, for example, which is bordered on 3 sides by

Belgium, France and Germany, the 4 funds share one pharmacist for an insured population of ¾ million (1.1 million total residents) and one of the 4 based in Heerlen has an insured population of 200,000, and two medical advisers.

The professional advisers duties vary from place to place, depending on the local structure, but they probably all have in common, advising their professional colleagues both in General Practice and hospital, advising on contractors payments claims, and counselling them on their prescribing and dispensing when necessary (see later section). The medical advisers again reflect the Ziekenfonds main responsibility being for financial matters by having a sanction over expensive non-routine procedures, such as cosmetic surgery.

Whether the pharmacist submits direct to the Fund, or to a bureau, the fund still has the ultimate responsibility for the proper payments being made - is the patient in contract with the fund, for example.

This is seen as important as a deterrent to abuse but some Ziekenfonds may find their budgets very stretched to do this properly.

Recepten Uitreken Controller Bureau (Recepten - prescription)

In the 1950's many pharmacists found they were spending excessive time pricing prescriptions, so they established their own specialist office. The sick funds were spending a lot of time checking. Eventually, by mutual agreement, the two operations were combined in to one. At one time every significant population centre had its own RUCB (a total of some 25 altogether in Holland). In some cases they were funded entirely by the chemists, in other cases it was a joint operation. Today for example, in Amsterdam the costs are shared equally. In Heerlen, the Limburg RUCB is funded about 60% by the Funds *.

As a result of the technological revolution, and the patient registration system in Holland, many pharmacists are finding the 1950's problem reversed and that the RUCB's cannot provide any additional service to their own micro-computers. Many smaller RUCB's have closed in recent years.

Unless some dramatic new factor emerges, the closure of RUCB's appears to be inevitable. It seems likely that in the next 5 years virtually all RUCB's will close, with the possible exception that a facility, perhaps a central one, will be needed to process dispensing doctors prescriptions.

* Normally there is a management board representing both parties.

II BASIS OF PAYING PHARMACISTS (an outline)

The Dutch method of remuneration appears very simple in comparison with England, but more complicated than in Germany:-

a) The pharmacist is repaid exactly the amount he pays for medicines and appliances.

b) He receives a payment of 10 guilders 65 cents per item dispensed (£3.23) * irrespective of its quantity, or complexity.

c) The V.A.T. (value added tax) is repaid.

d) The prescription tax is deducted (2 H.fl. per item).

The cost of processing is deducted (when an RUCB is used - see section V) and in some circumstances may be added (some Ziekenfonds pay the pharmacist for submissions by diskette).

* £1 : 3.3 H.fl.

RACB

Stichting R.A.C.B. – Amsterdam

Rederlijkheidsgegevenslijst

notheek: Maand: 19

Te recepten kunnen uitsluitend worden berekend, indien deze lijsten volledig èn zorgvuldig zijn ingevuld. Gegevens welke voor de juiste berekening noodzakelijk zijn, maar waarnaar op deze lijsten niet is gevraagd, op de recepten vermelden. Hetzelfde geldt voor variërend gebruik.

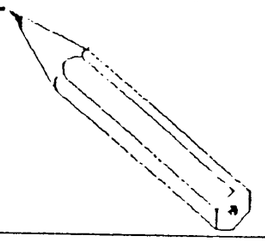
GEEF ALTIJD DUIDELIJK OP HET RECEPT AAN WAT IS AFGELEVERD

MAGISTRALE RECEPTUUR

Amino – 5/2 – hydroxybenzoëzuur gezuiverd – liia/blauw
Camphora naturalis – synthetica
Menthol naturalis – synthetica

Alcohol: Voor uitwendig gebruik pur. – keton.
In oordruppels pur. – keton.
In inhalaties pur. – keton.

Steeds omlijnen wat wordt afgeleverd



Bij afleveringen ZONDER toevoeging(en):

Alcohol alle sterkten	gram – ml.
Aether	gram – ml.
Aether petrolei	gram – ml.
Paraffinum liq.	gram – ml.
Stropen	gram – ml.

Vulstoffen:

Welke vulstoffen worden gebruikt voor (hoeveelheid op recept vermelden):

poeders ..... capsules ..... supp .....

Bij wisselend gebruik telkens duidelijk op recept vermelden wat is gebruikt.

Emballage:

Tuben voor: crèmes – oogzalven – steriele zalven

Tuben voor: zalven bevattende: antihistaminica – antibiotica – corticosteroiden –

Tuben voor: zalven contra haemorrhoides heparinoide stoffen

Wat wordt gebruikt voor de aflevering van:

Oogdruppels: gemo – flexiole – .....
Oordruppels: gemo – flexiole – .....
Neusdruppels: pipet – zentrop – sprayflacon

Inhalatie vl.st.: pipet – zentrop – drupp.garn.
Aanstip vl.st. : spatel – panseel – .....
Inw. druppels : pipet – zentrop – drupp.garn.

VERBANDSTOFFEN

elk fabrikaat verbandstoffen wordt door u afgeleverd, indien géén merk op het recept is vermeld?

Klinion S – Ucolon – van Heek – Mölnlycke

em. incontinentie-onderleggers:

illa – Edet – van Heek – Klinion S – Mecomfa – Medica – Mölnlycke – Ucolon – Utermöhlen.

verbandstoffen en onderleggers vermelden op recept: HOEVEEL STUKS PER PAK/DOOS ◄——

HOMEOPATHIE ZONDER MERKAANDUIDING KAN NIET WORDEN GEPRIJSD !!

s.v.p. alle pagina's ondertekenen

handtekening apotheker: .....

Omlijnen wat wordt afgeleverd, indien het artikel in de 1e kolom op recept is voorgeschreven. Indien u incidenteel afwijkt van hetgeen hieronder is vermeld, dit s.v.p. duidelijk op het recept aangeven. Deze lijst is niet volledig! Overigen s.v.p. zelf invullen.

In de onderstaande kolommen zijn de "branded generics" aangegeven door een fabrikant-afkorting Voorbeeld: achter "Indocid" betekent opg: "indometacine O.P.G.".

Afkortingen						
	O = Origineel	ph = Pharbita	wan = Wander
	L = Loco	pch = Parmachemie	bo = Boots
	opg = Onderl. Pharm. Grooth.	alb = Albic	broc = Brocades
	rn-p = Multipharma	spe = Specia	well = Wellcome
	du = Dumex	nlj = Nijco	PAR = Parallel-Impo

Acipen-V caps. 250 mg.	O	L								
Aldactone A tabl. 25 mg.	O	L					Spiroctan			P/
Aldactone tabl. 50 mg.	O	L					Spiroctan			
Aldactone tabl. 100 mg.	O	L					Spiroctan			P/
Aldomet tabl. 125 mg.	O			ph	opg	broc				
Aldomet tabl. 250 mg.	O		rn-p	ph	opg	broc	Sembrina	Mulfasin		P/
Aldomet tabl. 500 mg.	O		m-p	ph	opg	broc	Sembrina			P/
Allopurinol tabl. 100 mg.			rn-p		nij	well	Apurin	Zyloric		
Allopurinol tabl. 300 mg.			m-p		nij	well	Apurin	Zyloric		
Amoxycilline caps. 250 mg.							Clamoxyl	Flemoxin	Hiconcil	
Amoxycilline caps. 375 mg.							Clamoxyl	Flemoxin	Hiconcil	
Amoxycilline caps. 500 mg.							Clamoxyl	Flemoxin	Hiconcil	
Apurin tabl. 100 mg.	O		m-p			well				
Apurin tabl. 300 mg.	O		m-p			well				
Atarax tabl. 10 mg.	O	L								
Atarax tabl. 25 mg.	O	L								
Bactrimel tabl. 120 mg.	O		m-p		pch		Sulfotrim	Eusaprim		
Bactrimel tabl. 480 mg.	O		m-p	ph	pch	well	Sulfotrim	Eusaprim	Trimoxol	P/
Bactrimel forte tabl. 960 mg.	O		m-p		pch	well	Sulfotrim	Eusaprim	Trimoxol	
Bisolvon tabl. 4 mg.	O			ph						P/
Bisolvon tabl. 8 mg.	O	L		ph						
Broomhexine tabl. 4 mg.				ph			Bisolvon			
Brufen 200 mg.	O	L	m-p		pch		Ibuphar	Iburnetin		P/
Brufen 400 mg.	O	L	m-p		pch		Ibuphar	Iburnetin		P/
Brufen 600 mg.	O	L						Iburnetin		P/
Butazolidine drag. 200 mg.	O	L								
Cafergot PB supp.	O	L								
Cinnipirine tabl. 25 mg.	O	L								
Clamoxyl caps. 250 mg.	O						Flemoxin	Hiconcil		
Clamoxyl caps. 375 mg.	O						Flemoxin	Hiconcil		
Clamoxyl caps. 500 mg.	O						Flemoxin	Hiconcil		

Welk merk influenza-virus-vaccin heeft u ingekocht ? Alorbat Influvac Mutagrip Vaxigrip

Ascal sachets 600 mg. — Pulv. Carbasalati calc. 600 mg.

Antagel Pharmachemie — Susp. Antacida

Wat levert u af als de generieke naam wordt voorgeschreven?

Hydralazine HCl subst.	Apresoline (van tabl.)	
Neeclozine subst.	Postafène subst.	

En verder:

Ac. Salicylicum	Pulv. 90	Pulv. 100	
Ac. Acetylsalicylicum	Pulv. 180	cryst.	
Cellulose microcryst.	Ph 101	Ph 102	
Paracetamol	cryst.	Pulv. 45	Pulv. 100

Hieronder s.v.p. aangeven welke PARALLEL-IMPORTEN u aflevert:

Indien nodig, s.v.p. vervolgen op een apart vel, mede voorzien van een handtekening

PRESCRIPTION ENDORSEMENT SCHEDULE

The prescriptions can only be priced when these lists are completed fully and accurately. Information that is necessary for certain prescriptions in order to calculate them correctly and is not demanded on these lists, needs to be mentioned on the prescription itself. The same procedure needs to be followed for various other uses.

ALWAYS STATE CLEARLY ON THE PRESCRIPTION THE QUANTITY DELIVERED

A. Major Recipes

- Alcohol : for external use
  in eardrops
  in inhalations
- At delivery WITHOUT additives : alcohol all grades
  .....
  .....
  .....
  syrups
- Fillings :

  Which fillings are used for (mention quantity on Prescription)

  powders ..... capsules ..... suppository .....

  Always mention the items used on the prescription when use varies
- Package :

  Tubes for : creams - eye ointments - sterile ointments
  Tubes for : ointments containing : .....
  Tubes for : ointments for .....
- What is used for the delivery of :

  Eye-drops : ..... Inhalations liquids .....
  Ear-drops : ..... Swab liquids : .....
  Nose-drops : ..... Internal drops : .....

B. Bandages

Which make of bandage has been delivered, if not mentioned on the prescription. .....

As above for incontinence-bags(?) .....

For bandages and covers mention the quantity on the prescription:
Per Package/Box

C. HOMOEOPATHY WITHOUT MANUFACTURER STATED CAN NOT BE PRICED!!

Please sign every page Pharmacist's signature .....

Outline the items delivered if prescribed in the first column. If by chance you change brand etc., please mention this on the prescription. This list is not complete ! Please add where necessary.

In the columns underneath the "branded generics" are stated by their manufacturer.

Page 7

Which manufacturer of influenza - virus - vaccine did you buy ? .....

A .....

A .....

What do you deliver when the following names are prescribed ?

H..... A.....

M..... P.....

And further :

A..... P.....

A..... P.....

C..... P.....

P..... C.....

Please state underneath which PARALLEL - IMPORTS you deliver.

If necessary please continue on a separate sheet, signed as well.

III THE PRESCRIPTION PROCESSING SYSTEM

I Bureau Data Capture (Recepten Uitreken Controller Bureaux)(RUCB)

The bureaux send pharmacists a box of suitable size for their prescription forms every month. The boxes are precisely the right size to take the prescriptions on their side and contain numerous cheap pieces of card, printed stickers containing details of all doctors in contract with the local Ziekenfonds, and a polystyrene block.

The pharmacists sort the prescriptions by doctor, using the cards and the stickers. The polystyrene block is oblong and can be stood 3 different ways to prevent forms slipping and falling out of sequence etc. The boxes vary in size according to the work load of the pharmacy.

Pharmacists make their own arrangements for ensuring their prescriptions reach the RUCB, many using their wholesale co-operative transport systems.

On arrival the forms are numbered by hand stamps, with the account number and the number of the form in each batch.

The pharmacist writes nothing on the prescription form and claims the purchase price by completing a single control document and submitting this with the prescriptions. Its title is the Receptuur Gegevens Lijst (see illustration) The document lists most common Dutch drugs, but there is space for adding new items. The effect of this, in theory, is that the pharmacist need only write an endorsement once. The RUCB may, and do, audit the pharmacists purchase price statements by inspecting invoices, to ensure his truthfulness.

Data Entry

The Dutch system aims at 100% data capture and employ VDU operators to interpret the prescriptions and key up all the prescribing information, i.e.

Pharmacist account number

Doctor number

Medicament information by code based on therapeutic group

The pharmacist account is continually displayed as is the number of forms and items in the batch.

The data capture method is the 'menu' method. The operator keys the initial letters of the drug and selects the code from the index which then appears. The average number of items keyed is 3.0 per minute, although this varies around the country, depending on the average age of staff. The average daily output is approximately 1300 items. Data capture staff take a break every 90 minutes which is considered to help improve output. There is no bonus scheme in operation.

Checking

After data capture the batch is examined by program and warnings printed for high-cost items, unusual quantities and other anomalies. All such warnings are checked and any necessary adjustments made.

Program Calculations

The standard fee total and the various deductions are made by program before the payment cheque is issued.

Advance

Every month the contractor receives an advance. This is adjusted quarterly. It is based on the pharmacists payments over the last two years. The pharmacist does not record numbers of items or forms. The average discrepancy between the advance and the final payment is 2%.

Staffing

The larger RUCBs process the work of about 100 pharmacists with a work load of 250,000 - 300,000 prescription items per month. The total staff of such a bureau would be 12-15 full-time workers. Most data-capture staff in fact work part-time. Depending on the local pharmacists usage of their own computers, the staffing level is likely to have dropped considerably.

The pressure on RUCBs to cut their costs can easily be seen in this situation. This appears one of the factors which often causes delay in producing data quickly, sometimes creating a 6-9 month backlog. Fortunately the advance system proves accurate enough to avoid problems with the pharmacists funding.

II Pharmacy Data Capture

As the patient registration system requires most of the data for pricing to be recorded in the pharmacy, many of those pharmacists with personal computers submit diskettes direct to their Ziekenfonds, or to their local RUCB.

The benefit of this for them is that RUCB processing is usually free and some Ziekenfonds actually pay the pharmacists for doing so (8 cents per item in Zwolle and more in some areas)

The benefit of this for the Fund is in saving money and immediate access to the data for analysis and information. The Amsterdam RUCB for example costs 50 cents per prescription shared equally between Ziekenfonds and pharmacists. If the Amsterdam fund decided to pay 8 cents per item they could expect to save 40-50,000 guilders (£12-15,000) per month in fees. By contrast in Heerlen, the agreement is different and the fund pay only 3 cents per item, plus any excess over 16 cents.

The effect of this movement is considerable, but varies in impact from place to place.

In Heerlen for example 30 pharmacists submit diskettes to the Bureau. This requires only one person to check in comparison with 11 to process the remaining 70 (9 data capture, 2 checking). Consequently the 30 (mainly part-time) staff has now been reduced to 20; in Zwolle the RUCB closed down in 1987; in Amsterdam the number of computerised chemists has so far had minimal impact.

The pharmacist data capture is often inaccurate initially, but normally the error becomes minimal over the months, as the pharmacist and his staff gain expertise, and possibly correct their manual records. The level of check is dependent on the pharmacists accuracy, and even in some cases may be a token check. In Zwolle it was noted that the average discrepancy was 300-500 guilders (£90 - £150).

The procedure is similar to the RUCB where high cost, large quantity or unusual items would be printed and checked.

There is some variation in the data captured between different Funds and Bureaux. Discussions are taking place at removing any differences and creating a National Standard.

IV INFORMATION SERVICES

The data received on prescribing is analysed by the Ziekenfonds computers. The output is in numerical form presented in tables.

Although the Funds can be successful at influencing the prescribing patterns, the existing format is felt to be inadequate and attempts are being made to change it. The information will demonstrate particular problems, the main innovation being differences in prescribing for particular body systems - for example why a doctor has 10/20 times the norm for respiratory drugs.

It is also hoped that the project will help give the Universities more information about prescribing patterns to help in student training.

A major problem in some areas is the time taken to produce statistics - possibly 9 months, which severely hampers the Fund staff in counselling prescribers.

Statistics are compiled on a yearly basis and it is therefore only possible to see prescribers a long time after the event and there is then a further long gap. In future it is hoped to supply costs to doctors on a monthly basis which should be of great assitance.

It is possible that limited patient data will be included on the statistics - date of birth, and insurance fund number. This had been opposed, (by pharmacists), but has now been accepted as the Funds already receive more patient information about hospital stays.

V COST OF PROCESSING

The Procedures in use may be summarised as follows:-

a) Pharmacists who use RUCB's for data-capture pay a price per item (e.g. 20 cents).

b) Pharmacists may send data to RUCB's and perhaps pay a reduced fee (or even free service).

c) Pharmacists may send data direct to the Health Insurance Funds, some of whom pay the pharmacists for this (e.g. 8 cents per item).

The cost of processing has not proved possible to calculate due to the number of different organisations involved and the high degree of local discretion and consequent diversity of approach.

In Germany by contrast the system is also much decentralised but as it is commercially competitive certain assumptions can be made about costs.

However the costs of 2 RUCB's and payments by one Fund have been established. These provide some useful comparisons, but cover only data-capture not the provision of the prescribing information service.

RUCB 1	-	50 cents per item	- 15.15 pence
RUCB 2	-	45 cents per item	- 13.63 pence
HEALTH INSURANCE FUND	-	8 cents per item	- 2.42 pence

VI Prescribing Counselling

In Holland the counselling of doctors involves not only prescribing by Family Doctors, but also hospitalisation rates and investigations ordered. Independent specialists and hospital doctors are also counselled.

Personal contact and persuasion is the essence of the approach. This is thought to be effective although this is a matter of assessment by the Fund professionals. No objective criteria have been isolated because of the variables involved, for example:-

a) demographic make-up continuously changing

b) no reliable standardisation for age/sex and locality

c) distorting effect of inflation

d) impact of therapeutic innovation.

It is important in Holland that this approach succeeds because governmental pressure has had no effect at restraining health expenditure in these respects.

Nationally there are some 40 people involved in counselling doctors and 12 of them liaise regularly (through the National Health Insurance Funds Council. Many funds share professional advisers.

The high political profile of this issue makes prescribing counselling one of the major tasks for the advisers and generally absorbs roughly 20% - 30% of their time.

Peer group discussion and individual interviews are used. The first approach makes use of the strong and regular links between Family Doctors in a locality. Frequently the Ziekenfonds advisers will be welcome at such meetings and are thus able to raise problems in a general way, discuss good practice, spread ideas and hopefully create peer group pressure, which can be highly effective.

Personal interviews are undertaken where the Ziekenfonds finds irrational prescribing patterns or high costs. In one area the Senior Medical Adviser is a former local family doctor and the advisers feel they have good relationships as a result. However, such good will is not always available and the co-operation of family doctors appears to be reduced. The personal interviews are more stressful as a result.

The advisers can make powerful use of the Dutch Pharmaceutical Association publication "Pharmaceutische Kompass". This has extensive guidance on economical and effective drugs and strongly distinguishes positive and negative products. A significant proportion of contra-indicated drugs being prescribed by a doctor would lead to a personal interview.

Generic prescribing is a main theme in the advisers efforts to reduce costs.

The Ziekenfonds have 2 main problems in influencing doctors:-

a) the data tends to be out of date (see Information Services)

b) the Fund has at present no sanction over a doctor except, in extreme cases, terminating his contract. No penalties can be levied.

A new contract under negotiation could resolve the problem of lack of coercive measures. It has been suggested that cost anaylses could be issued monthly. This would also be of great assistance.

The advisers have no formal training programme to prepare them for their counselling role, and it is interesting to note that there is an increasing use of pharmacists in the role, with 5 advising larger funds or groups of funds.

Preparation for a counselling interview could take half a day. The interview itself might well last several hours, covering matters other than prescribing practices.

The number of doctors to be covered is 6,000 family doctors and about 6,000 hospital doctors and independent specialists. The total time devoted by Ziekenfonds staff is probably equivalent to about 15 full-time posts.

P A R T I V

WEST GERMANY

F E D E R A L R E P U B L I C O F G E R M A N Y

I THE GENERAL STRUCTURE

Funding (an outline)

Germany has a large number of diverse decision makers and diverse sources of funding. There is no central overall budget. For the purposes of this paper only, a very brief outline can be given, to give a rough impression to readers not familiar with the German context.

The following organisations are involved in health care funding:-

a) The Federal and Provincial (Land) parliaments and the local councils.

b) The Federal Ministries of

   i) Labour and Social Affairs
   ii) Youth Family Affairs and Health

c) Federal Health Office - mainly supervising the drugs market, and the Federal Centre for Guidance on Health Matters.

d) Equivalent Ministries in the 11 provinces - responsible for funding hospitals, environmental protection, health education (partly with the local councils)

e) Statutory health insurance funds (Krankenkassen)

f) Associations of health service professionals (i.e. doctors, pharmacists etc.)

The scope of this paper is concerned almost entirely with the last two categories - health insurance funds, associations of health service professionals.

The Government merely operates as the "manager" of a complex array of largely independent social groups. After a consensus has emerged it prescribes the legal conditions and supervises their observance. The individual groups have considerable power to promote their own interests and the political debate tends to be dominated by questions of prices and financing rather than quality.

Over half of all health care funding is provided by the health insurance funds.

The Patient and the Doctor

Anyone earning under £18,000 per year must join the health insurance system. Over that sum, salaried employees have the discretion to remain within the system or make their own arrangements e.g. a private insurance. 87% of the population are insured with a Krankenkassen.

The Patient may then choose any doctor provided he is a member of a Federation of Panel Doctors (KassenArtsliche Vereinigung (KAV)) organised on a regional basis. There are many Family Doctors in Germany but a patient may also refer himself direct to a specialist working in the community (and in hospital).

The KAV enjoys the same legal status as health insurance funds. They ensure that the number of doctors is adequate and administer their affairs independantly, subject only to the legal supervision of the Government. They negotiate contracts with the insurance funds or their associations. There is no contractual relationship between individual doctors and health insurance funds.

The doctor receives his fees direct from his association. They distribute his pads of prescription forms which have been printed with the doctors name and identity number in machine readable characters.*

The doctor receives a "fee for service" i.e. he submits a bill for every patient contract to the KAV who reimburse him and reclaim the money from individual insurance funds.

The doctor is allowed surgery stock from a limited list (known as Pro Communitare) at the rate of 100 Deutsch Mark per 3 months per registered patient (about £30). There are no dispensing doctors.

The Pharmacist

When an insured person presents a prescription to a pharmacist he pays 20% of the selling price up to a maximum of 2.50 D.Mark. There are numerous exemptions (children and elderly people for example).

The Patient may take a prescription to any pharmacist. There is no limitation to opening a pharmacy in any location. However, the Federal Government policy is to reduce the number of pharmacies (about 17,500) which it considers excessive, by rendering the smaller ones uneconomic to maintain. The payment mechanism is used to effect this by deducting a standard rate of discount. Wholesalers have subsidised smaller businesses but are finding this increasingly difficult. The over-provision has arisen because of an inbalance in the education system. Industry and other branches of the profession are fully staffed.

Where a pharmacy business is not viable in a small isolated community the local council may employ a pharmacist directly, but this is restricted to the mountains and the off-shore islands.

In a somewhat similar manner to the doctors, the pharmacists have formed their own regional associations. These have formed specialist bureaux to process prescriptions and agreements have also been made with the health insurance funds. These contain preferential conditions for the different types of fund, relating to prices and among other things, loans.

* OCRB or CMC7

THE PRESCRIPTION PROCESSING SYSTEM

- GERMANY

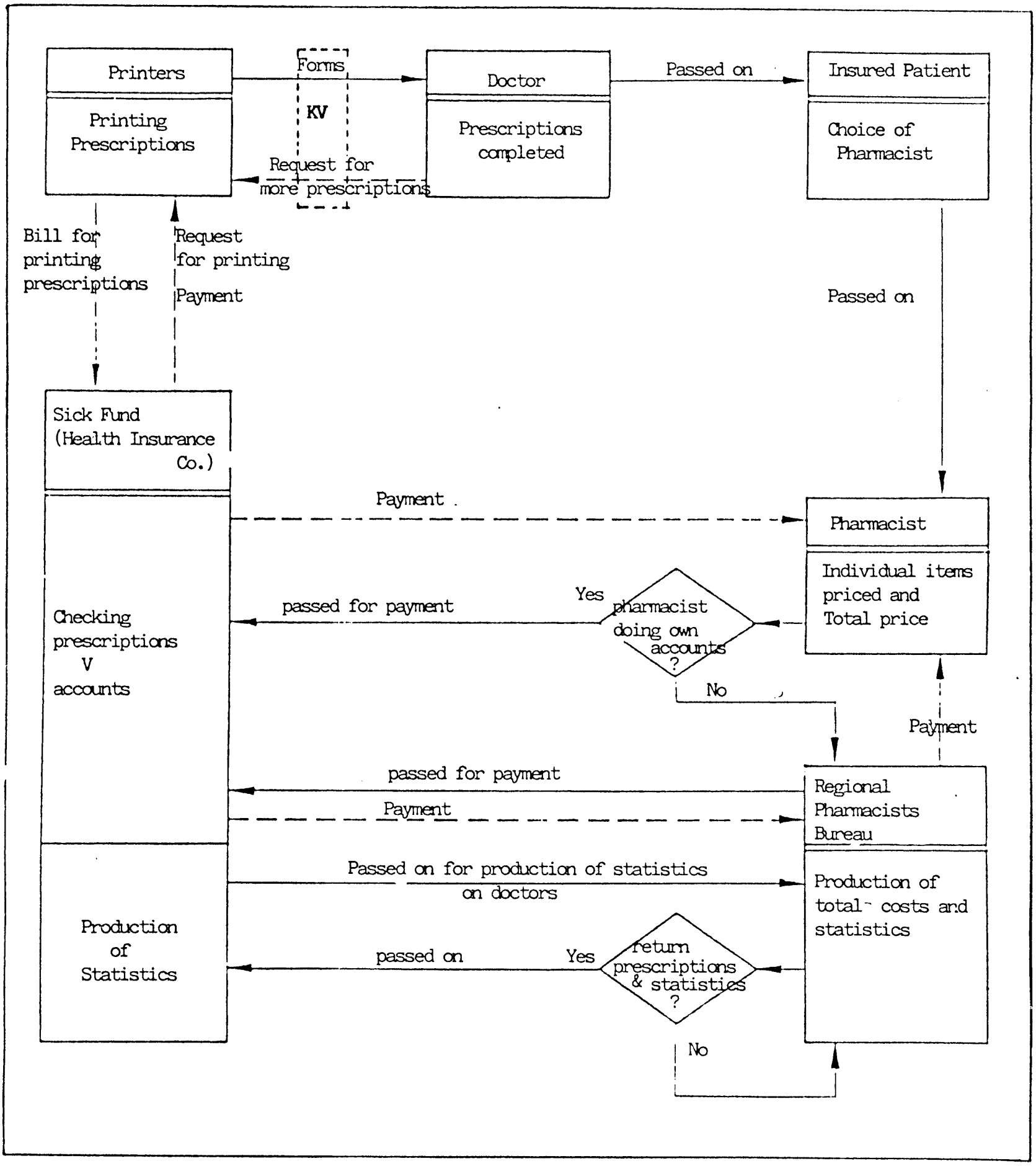


FIGURE 9

With acknowledgements to SCS Organisationsberatung und Informationstechnik GmbH

On average a pharmacist would expect to handle 2,000 prescriptions per month, or 22,600 per year. The meaning of a prescription differs between England and Germany - at least within the payment system. In England each individual medicine etc., is called a prescription. In Germany the word means the form. There is an average of 1.8 items on a form so that the number of medicaments dispensed by a pharmacy will be about 3,400 per month.

The number of different Krankenkassen insuring the pharmacists patients varies from 30 - 250 depending on the location of the pharmacy. Ther average is probably 50-60. This raises great difficulties in settling accounts unless the pharmacist uses specialists - as indeed 95% do.

Before dispatching his prescriptions the pharmacist writes his retail price against every item and the total value of all the items. He also stamps his identity, puts the dispensing date and the amount of medicine supplied.

Health Insurance Funds (Krankenkassen)

There are 1,186 Krankenkassen* in Germany with a wide variety of types of clientele. Some cover a local area, ⅔ are based on a factory or a company, others are based on trades (seamens, mineworkers Krankenkassen) on occupational groups (blue collar, white collar workers). The AOK** is Germany's biggest Krankenkassen. I visited two of its branches which showed 20% and 60% of the population of the areas concerned in membership.

In one area there would probably be 50-60 separate funds operating.

Organisation of Payments to Pharmacists

The pharmacist decides himself how to organise his claims for Krankenkassen funds. He can:-

a) Make out his own bills (for perhaps 50 funds)

b) Use an independent commercial agency.

c) Use his regional association's specialist bureaux.

The pharmacists choices are as follows:-

a) 5% send their own bills - appears to be uniform throughout Germany.

b) 5% to 50% use commercial agencies.

c) 45% to 90% use the pharmacy association bureaux.

The variation in the use of the commercial agencies probably depends on a variety of factors, such as historical arrangements, the commercial acumen and costs of the competing bureaux etc. For example in North Rhine - Westphalia the Association bureau has found the Krankenkassen unwilling to contract out an operation which would generate additional income and thereby enable the bureau to reduce its fees to chemists. By contrast in Bavaria - BadenWurtemberg, the bureau has captured a large volume of Krankenkassen work and its costs are 30% lower.

* 1986 Government figure

** AOK - Allegemeine der OrstKrankenkassen - "Everybodys" Sickness Fund

Nationally the 4 bureaux process 65% of the 395 million prescription forms (1986 figure) for a fee of ¼ to ½% of a pharmacy's turnover.

The Association bureaux (Apothekerechenzentrum, or Verrechnungstelle der Apotheken) are primarily concerned with the interests of the pharmacist. They reimburse him for his expenditure and must speedily reclaim this from the Krankenkassen in order to minimise their cash flow gap. They may be assisted in their operation by the Doctors and Pharmacists bank.

Consequently they are not concerned with what has been supplied by a pharmacist, written by a doctor, or any other variation in the standard system. Paying the pharmacist has no requirement to capture any information about the drugs or appliances supplied, the accuracy of dispensing, the possibility of forgery etc. The payment operation therefore simply totals the the prices claimed by the pharmacist. However because of bureaux expertise in processing they are gradually becoming involved in capturing the medicinal information on the prescription form. This however is carried out as a separate exercise.

I was fortunate to be invited to visit 3 of the 4 regional association bureaux in Germany. The processing arrangements differed somewhat in each bureau, but the general procedures and the equipment in use are broadly similar.

Their workload was as follows:-

Bavaria - Baden Wurtemberg (Munich)	-	5,300 pharmacies 10-11 million forms per month
North Rhine - Westphalia (Haan - 30 kilometres from Dusseldorf)	-	2,000 pharmacies 4 million forms per month
Hesse (Darmstadt)	-	4,000 pharmacies 8 million forms per month

II BASIS OF PAYING PHARMACISTS (an outline)

The pharmacist obtains his income solely from the profit margin between wholesale and retail sales.

There is no fee for each item dispensed (Labour Fee) or fee for containers used for the drug. No special payments are made for opening at special times or for training students or any other factors.

The Government exerts tight control of the costs by setting price ranges for the wholesaler and the retailer and has legislated for a discount* to be returned to the Krankenkassen (provided the latter pays the pharmacist within 10 days of receiving his bill).

The total number of medicaments available on prescription (110,000 approximately) adds to the pharmacists stock control and cash flow problems.

* 7% in 1986. However it may be varied by mutual consent.

Accounts Settlements in the Regional Pharmacists Bureaux
- Principal Procedure

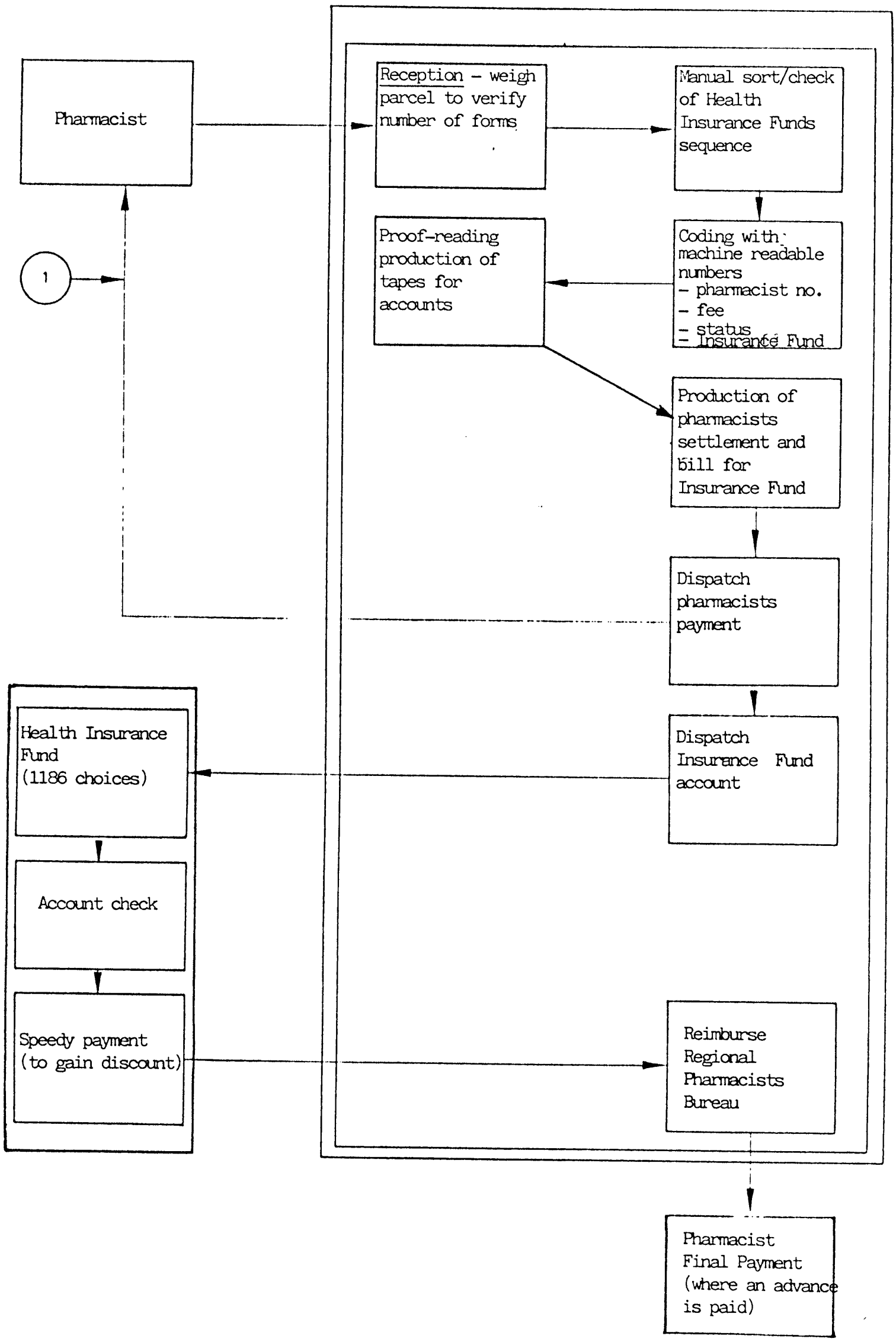


FIGURE 10

III THE PRESCRIPTION PROCESSING SYSTEM

REGIONAL BUREAUX

Dispatch and Reception

Most prescriptions are collected by courier, usually three times per month. The pharmacist may pay for this service (for example 0.02% of turnover). On receipt staff check if the forms are sorted by Health Insurance Fund. The forms are then weighed on an electronic scale accurate enough to detect a discrepancy of 4/5 forms from that claimed by the pharmacist. Initially a sample is weighed to eliminate error due to forms being dryer or moister than average. The forms can be weighed immediately because there are no supporting or additional items such as paper clips, other papers etc. In reception the forms are placed in cardboard boxes of a width which prevents the forms mixing. Several accounts go in each box.

Sorting

Prescriptions from pharmacists who do not sort the Health Insurance funds have to be sorted separately in order to enable the next stage (coding) to operate satisfactorily.

Non-sorting pharmacies pay an additional fee (e.g. 0.01% reduction for each Krankenkassen with more than 90 forms). This is a manual job because the detail of the fund is written on to each form (by the doctor).

Coding

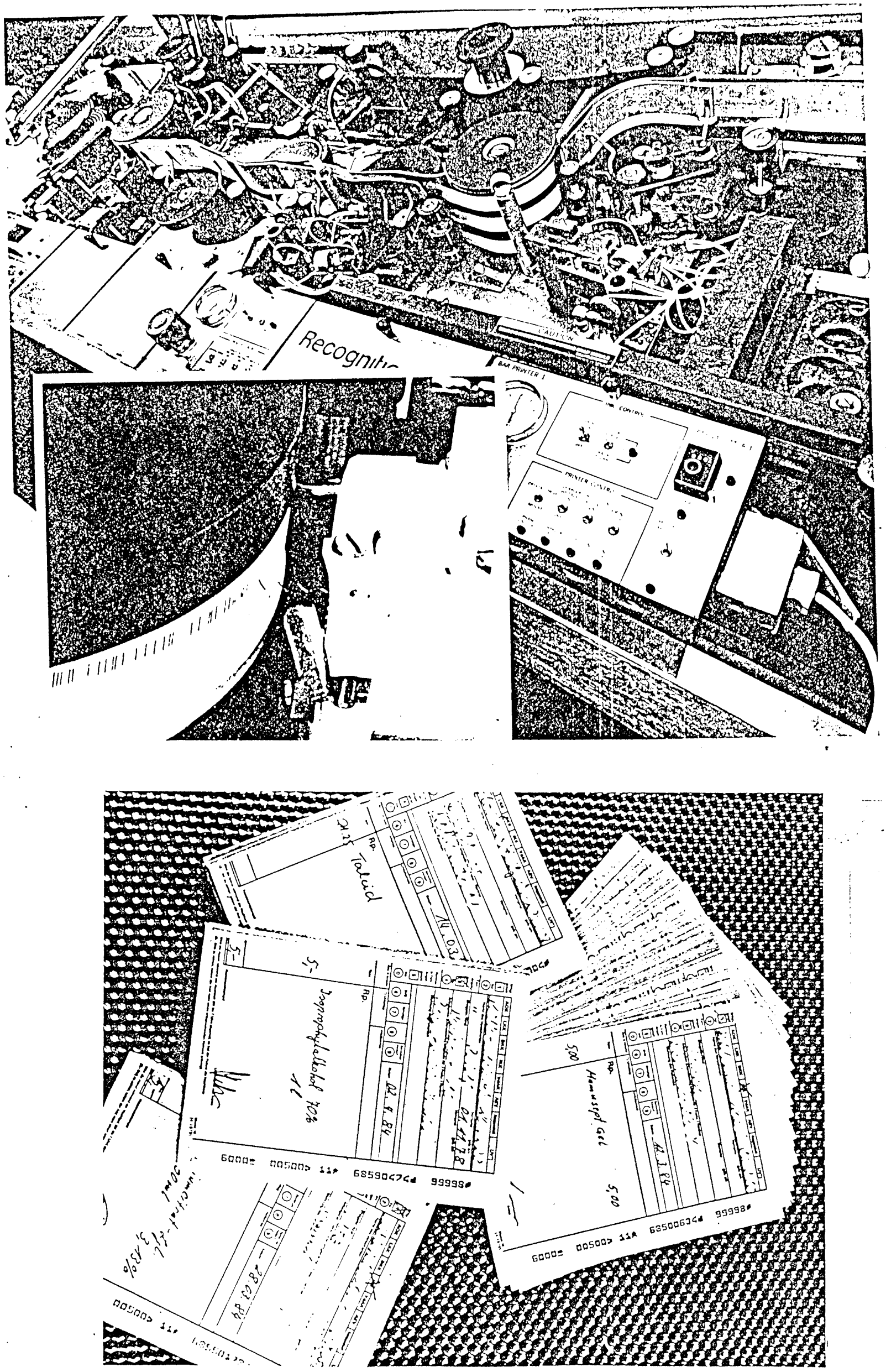
The forms are then processed by a Key-Punch operator who keys the following information on to the form in machine readable type:-

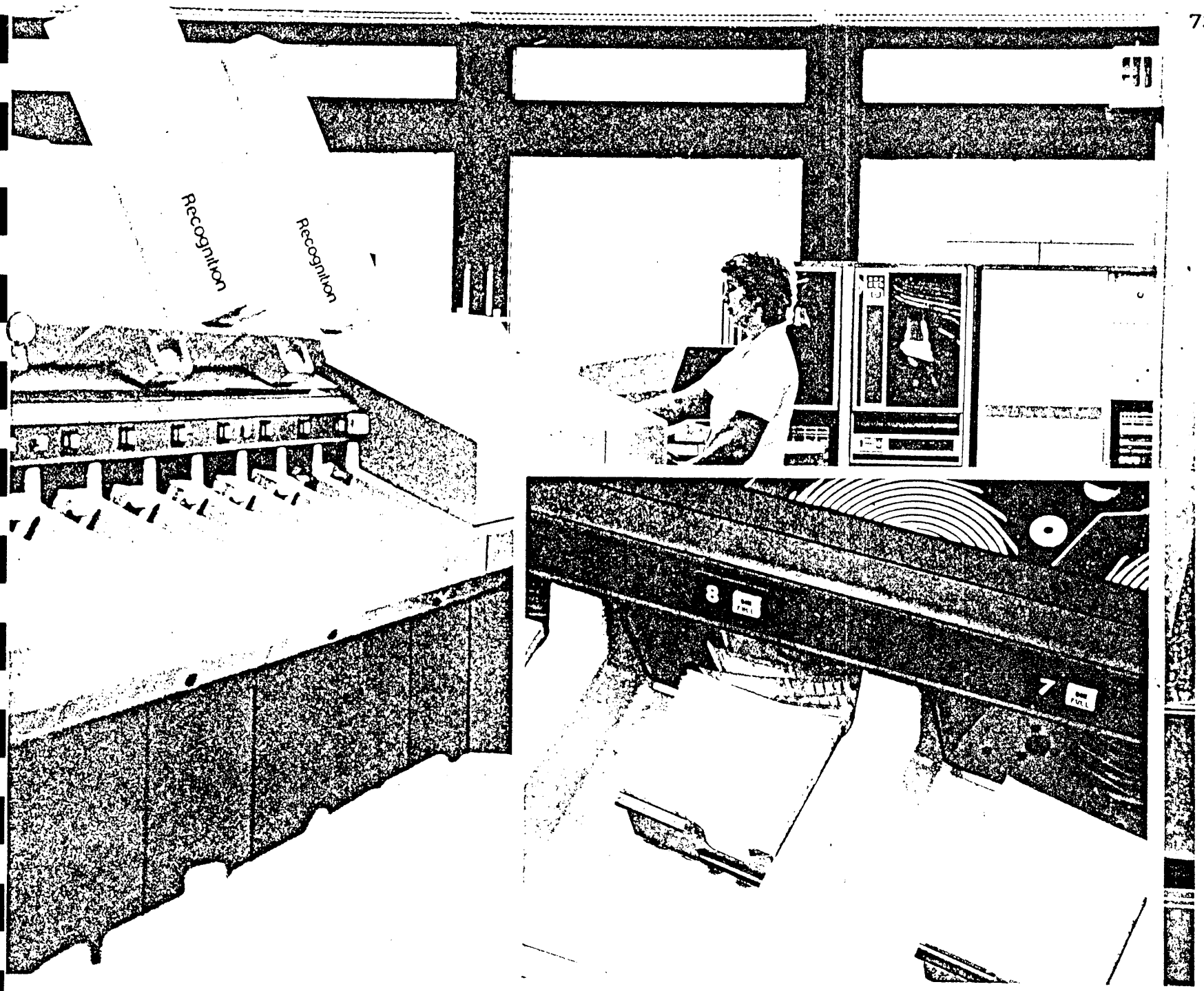
- Chemist number
- Health Insurance Fund number
- Tax contribution i.e. prescription charge or exempt.
- Total cost claimed by the chemist
- Health Insurance status (e.g. Family of insured person) — variable requirement
- Sequence number in batch — variable requirement
- Number of prescribed medicines — variable requirement
- A doctor's bureau number — variable requirement

The work is done at speed. 2,300 forms an hour are possible when processing the biggest health insurance funds. But this may drop to 450 per hour for the small funds or smaller numbers, as the operator has to stop to find the numbers. This operation is subject to a variety of quality control checks. The error level in one bureau is 0.2% - one in 500 - in both number and value.

Document Reading

The coded forms are then fed through main-frame linked high speed document readers which can deal with up to 144,000 forms per hour (see illustration Figure .....


Recognitio
CAUTION
BAR PRINTER 1
PRINTER CONTROL


Recognition
Recognition
8
7

It is processed a) by chemist number
b) by health insurance fund

During this process an additional bar code is printed on the reverse of the form by the ink-jet printer, the principal purpose being to stop duplicate settlement.

Various validation checks are run to ensure the accuracy of the data.

At one time the document reading required 11 passes in the machine. This is now reduced to 5 - 6.

The Health Insurance Fund receives a bill from each chemist and a collective bill, and in some cases a list showing the cost of every single form. The pharmacists receive a list of items arranged by insurance fund. The amount due in prescription charges is deducted.

The document reading sections in each bureau have more in common with a factory operation than an office. The forms are transferred from cardboard boxes to much larger plastic ones with centre dividers. Pallets and pallet trolleys are in general use.

The bureaux expressed great satisfaction with their document reading equipment, which is understandable with a failure rate (in one bureau) of the printer of one form per million. Two local firms are involved with printing the prescription forms (with machine readable doctor number). The failure rate of these is rather higher - one in three thousand to one in ten thousand, but this is found acceptable.

Completion of Processing

At the end of a calender month when processing is complete the prescriptions are recombined for each pharmacist and dispatched to the health insurance funds for any audit checks they wish to make, and ultimately storage. This is proving a problem for some funds but the bureaux are not equipped to assist.

The dispatch sections of the bureaux use a variety of techniques, such as "knock-flat" boxes, strapping machines (using polypropylene binding) and an office size cardboard compacting machine (for waste cardboard).

Accounts

The debtor and creditor position is monitored by the bureaux accountancy sections. The number of different accounts needs careful monitoring. They maintain details such as gross amounts, patients contributions (totals), discounts etc. Magnetic tapes are not yet generally acceptable to the health insurance funds so the volume of hard copy schedules is considerable.

Statistics

By agreement with the health insurance funds the bureaux produce statistics giving doctor analyses every 3 months. This is of course done electronically by using the machine readable doctor number. For this purpose the bureaux will code forms sent direct to the health insurance funds by pharmacists.

General Comments

The bureaux work to very tight schedules under strict contract conditions. Any delays in settling pharmacists bills could be commercially disastrous because of the competitive nature of the system. Considerable additional expense will be incurred by delays in producing the insurance fund bills.

These pressures however lead to major peaks and troughs in workload which must cause considerable wastage. The usual practice is to carry out statistical work (for health insurance funds for example) during these periods. Various commercial initiatives are being taken by the bureaux - such as writing software for use in pharmacies - to enhance their market position.

The cycle used and the payment arrangements are entirely at the discretion of the local associations - for example two bureaux pay an advance of about ¾ of the usual monthly turnover; another pays nothing until settlement.

The bureaux operate no bonus schemes; all the staff are on a fixed monthly wage - high by English standards.

I was very struck by the general neatness of the processing system, a direct result of the forms travelling around in boxes*. In the coding sections some bureaux temporarily store the forms in vertical stacks, so that high level shelving (with its intrusive effect) is avoided.

* See also Holland and Recommendations

Flow Chart of Production of Prescribing Statistics in the Regional Pharmacists Bureaux

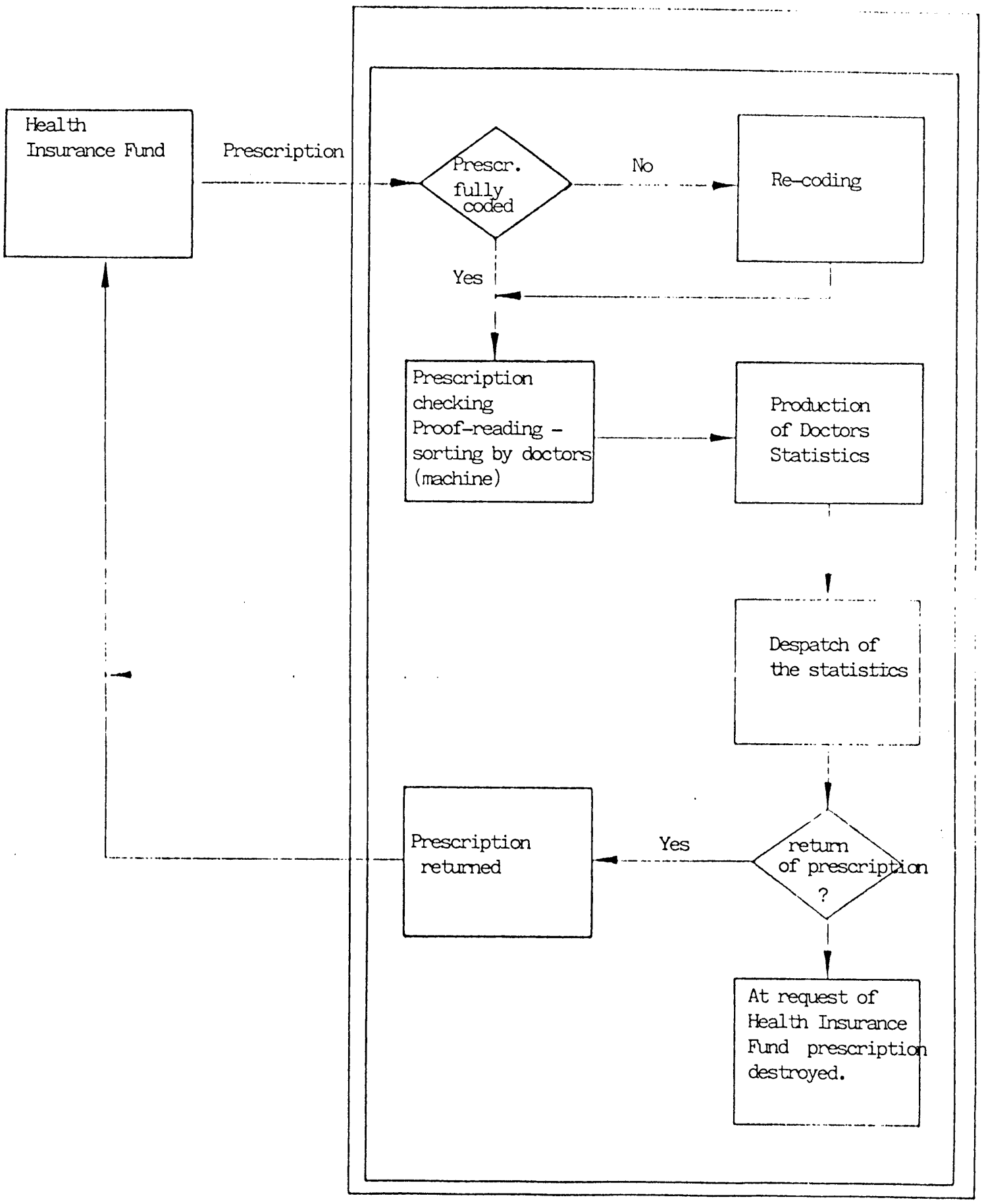


FIGURE 11

This flow chart applies to the production of statistics based purely on cost. Data capture would usually involve the same months statistics and the prescriptions would pass through the Bureaux a third time.

Uncoded prescriptions arrive from the other payment routes (i.e. direct submissions to health insurance funds or to commercial bureaux).

IV INFORMATION SERVICES - GERMANY

The reader will have observed that in Germany the pharmacist payment system makes no provision for collecting data about medicaments and appliances used. Hitherto this information has either been collected by ad hoc surveys or direct from the manufacturer (sales data only)

High cost doctors were dealt with purely on cost in comparison with averages*.

This system is now generally felt to be inadequate and over recent years this has led to the introduction of data-capture and a prescribing information service is starting to develop. Some health insurance funds have been active in this as have some pharmacists regional bureaux.

Data Capture

The bureaux sort the prescriptions by prescriber to provide average prescribing costs. The forms relating to high-cost doctors are then keyed to provide the detailed information on his costs. The staff use a menu system to check the drug and the price, and key up the data on micro-computers. The outputs of the staff do not vary a great deal. The minimum expected is 900 and the maximum achieved is about 1,300.

The information is transferred to a main-frame for processing.

Information Processed

The pharmacists bureau in Bavaria (Munich) has developed the system known as GKV index.

The index may be presented in 3 formats:-

- dates and medicaments for each month
- Lists of medicaments in descending order of cost
- Costs by therapeutic group

All these can be compared with average costs. The data is presented only in numeric form. It is probable that other organisations will have developed different parameters to analyse.

* See Prescribing Counselling (Germany)

V Cost of Processing

The structure of the German system prevents the presentation of a cohesive picture of the cost of prescription processing.

As described earlier, the payment of pharmacists is divorced from the capture of data about prescribing. Charges for the former by the Regional Bureaux vary from 0.265% to roughly 0.4% for pharmacists which sort their forms fully by Health Insurance Fund. Those who do not sort in this way pay up to 0.49%. The total cost of processing pharmacist claims therefore looks in the range of £15-£24 million. *

The cost of data-capture varies dramatically from 55 to 125 pfennings per form. There are an average of 1.8 items per form and the cost per item is therefore 30.5 to 69.4 pfennings. The sterling value equates to 10.5 to 23.8 pence per item.

The German system is aiming to achieve data-capture of 10% of prescriptions (70 million). The probable cost appears to be £10-£12 million (30-36 million Deutsch Marks)

As it is intended at present that only high cost doctors prescriptions should be keyed, the cost of data-capture as a percentage of the cost of these drugs and appliances is misleading and is omitted.

Data capture alone is likely to cost between 1.2% and 2.7% of average drug costs for the number obtained.

The total cost of processing pharmacists claims and 10% data capture will probably run in the range £25 - £36 million.

* Total drug costs (for 1986) were £5.9 thousand million (17.8 thousand million deutsche marks) using £1 : 3 D.M.

VI PRESCRIBING COUNSELLING

The situation currently in commonest use in Germany is not appropriately called counselling.

The high cost doctor is called to a legally constituted tribunal with representatives from the Federation of Panel Doctors (KAV) and the Health Insurance Funds. If he is unable to justify his high cost level, he would be ordered to repay the "excess" costs above the average. There is no penalty.

There are two main problems with this approach:-

a) it is inappropriate for dealing with doctors whose costs are high but not exorbitant i.e. less than 50% above average.

b) it is an inappropriate mechanism for modifying behaviour. For example a doctor might be ordered to refund a large sum of money (say 100,000 D.Mark) but continue his prescribing pattern unchanged, because no demonstration has been offered about how he might alter.

Consultation System

The introduction of data-capture has been followed by initiatives to informally counsel doctors on their costs and anomalies in their prescribing.

Initially the administrative doctors of the Federation of Panel Doctors undertook this role on behalf of the insurance funds and this is still the case in many areas. However, some insurance funds, especially Germany's biggest (AOK) are not satisfied with the results.

In Germany one of the problems of using doctors for prescribing counselling is that the discussion is liable to tread on sacred ground - clinical diagnosis and autonomy - and thereby the "cockfight" problem became recognised.

The issues usually centre on the therapeutic benefits of different drugs, which is not a speciality of an average doctor.

As a result the AOK began introducing pharmacists to carry out this role.

The results for the AOK are extremely encouraging. They find that a pharmacist can avoid major confrontations more easily because of his specialist knowledge of the subject and he has no incentive to stray into discussing diagnosis. Discussions flow quite freely at an analytical level. Specifically they note that:-

i) doctors and dispensing pharmacists are impressed which enhances the AOK image.

ii) some high cost doctors even reduce their costs to the average.

iii) AOK costs are reduced and thereby premium rises minimised.

iv) the approach has been successful in some areas in driving dubious drugs off the market.

v) the approach has built up generic prescribing

vi) the approach has improved the quality of prescribing

vii) the approach has enhanced job satisfaction of doctors

The satisfaction with the use of the pharmacist is anecdotal because there are currently no studies available to demonstrate the impact. However, the AOK has built up the number of pharmacists to 35 since 1981, and plans for 50 in 1988 with possibly a long-term goal of 100.

Despite the satisfaction with the results of their initiative the AOK take considerable care with the process because it is a potentially difficult exercise for anyone. Considerable personal skill is needed to carry out counselling in a non-judgemental and non-threatening way, and the fund consider that only a limited proportion of people have the necessary personal qualities. Communication training has been quite vital in preparation.

The arrangements tend to vary in different Land (regions). In Bavaria, for example, the Regional Associations of the Health Insurance Funds have grouped together and obtained an agreement with the Federation of panel doctors over prescribing counselling. Any doctor whose costs exceed the average by 20% - 50% will be interviewed (jointly) by a Krankenkassen pharmacist and a Federation representative. 128 doctors had been counselled in the 1½ years before my visit.

The results appear very encouraging, with good rapport often being established and doctors approaching the pharmacists for advice. They take the opportunity to demonstrate that as the doctor receives a fee for each consultation he can maintain his income without prescribing more. They are pleased that the pharmacists are accepted as specialist advisers in this field.

There are however, disadvantages in using two "counsellors". Both the Krankenkassen and the Federation of Panel Doctors commented on the need for joint preparation and close agreement about the problems in a particular case. There may be difficulties obtaining doctors who can appear credible to the prescribing doctor and it may be important to consider whether the subject would not feel more vulnerable, and therefore aggressive with two "attackers" rather than one.

Without in-depth research it would be inappropriate to draw a definite conculsion, but it may be relevant to consider whether the Federation of Panel Doctors feels it needs to be seen positively interceding for its members, when it challenges for access to prescribing counselling. An academic study to demonstrate the effect of counselling may be mounted to answer the last question, among many others, in the near future.

A counselling interview takes from ½day to one day to prepare and 1½ hours to half a day to carry out (including travelling). The maximum practical number of visits is considered to be 100,

but 30-50 per annum are the average (at least in the AOK) because the pharmacist has other duties, such as running the checking of bureau calculations.

Priority for prescribing counselling is targeted at family doctors and 'internisten' (specialists in lungs, heart, kidneys, stomach diseases etc.) who account for 85% of drug costs. Their combined number totals some 60,000.

PART V

E N G L A N D

CONCLUSIONS

General

The organisational structure is comparatively simple. This makes a dramatic contrast with Germany. The pharmaceutical service in Holland is also simple but other parts of its system are considerably more complex.

In England the basis of payment of pharmacists is extremely complex - a major contrast to both Holland and Germany. Many Dutch pharmacists submit accounts direct for payment. Similar experiments in England seem likely to face serious difficulty. In addition to the complex remuneration system, the permitted range of drugs is about 10 times higher and pharmacists do not enjoy the benefit of patient registration used in Holland.

Security of Prescription Forms

It is interesting to observe that in both Holland and West Germany the prescription forms are printed with the doctor details. In England, Family Practitioner Committees make local arrangements for stamping the doctor details. A high proportion of the Committees use hand stamps which is very slow and may give poor quality. This also gives rise to extra operating costs in the PPA, and may prejudice the validity of prescribing information.

The prescription form is relatively simple to forge on a two-colour press, and as a result of these factors there may be considerable numbers of forged forms in circulation. The number of incidents of theft of forms is recorded by F.P.C.s, but the number of forms stolen is usually not known. Many of them are stolen by drug addicts.

There is no means of knowing the impact of illegal forms on the cost of the N.H.S. and the success of the police in recovering them is poor. The PPA may detect some but these are the exceptions.

The technology and the organisational structure is available to accurately monitor the level of forgery and theft and to introduce measures to control it. The costs of doing so appear to be exceptionally modest, since new technology to achieve this would also reduce operating costs in F.P.C.s and the PPA.

Pharmacist Payment/Data-Capture

The costs of data capture compare very favourably with those current in Holland and West Germany, despite the English remuneration system being much more complex. The Dutch also operate a 100% data capture system to pay their

pharmacists. Their costs appear to range up to 300% more. In Germany, data-capture costs 180% to 400% more with the pharmacist payment made separately on his claim, costing 20% to 40% of PPA costs.

The key factor in this discrepancy appears to be the method of data-capture chosen in England where operator output is determined largely by aptitude. By contrast in both Holland and Germany the system design prevents speed development. Other significant factors are the facility with which a unitary authority can set targets for managers and staff to achieve, exchange good practices, and resolve problems, provided it has a reasonable degree of autonomy. This can only be done by independent bureaucracies with much greater difficulty.

Despite these favourable comments, it is clear that there is some scope for the PPA to improve its efficiency. Preliminary costings show a saving of some £300,000 for 2 schemes - 1½% of PPA total expenditure.

Some other ideas seem promising and may raise potential savings considerably. They require detailed consideration in several different fora.

Support will be required from one or more of DHSS, pharmacists and FPCs in all cases if any were to be implemented.

By comparison with the prescription processing systems of Holland and Germany the opportunities for productivity improvement appear marginal. Nevertheless all such efficiency savings will be of interest.

3 of the schemes will be of particular interest to pharmacists; 2 of them could reduce the work required to submit prescriptions to PPA.

Role of Prescription Pricing Authority - Crime and Drug Abuse

The Authority concentrates its resources on fast accurate payments to pharmacists and accurate information to doctors.

With only modest extra resources it seems possible for the PPA to expand its role in crime prevention and detection, and monitoring abuse. Considerable assistance can be given to the Police and the Home Office Drugs Inspectorate using the techniques and technology described in this study.

Suspicious activity by doctors, pharmacists or their staff is spotted by chance. There is no funding for staff to specialise in this during processing and the Authority's Audit Division has only the capacity to monitor 2% of the intake.

Information Services

The information service in operation in England at the time of writing is rather more developed than those of Holland and Germany, as every Family Doctor receives a yearly summary of his prescribing, and interested individuals can request details. Normally only high-cost doctors would receive details and a counselling visit (see below - Prescribing Counselling).

A major new development is about to replace the current traditional format with graphic presentation which a research study (by Herriott-Watt University) has demonstrated should enhance the effectiveness of the information presented.

This development has required major investment in both hardware and software. It is intended as the main controlling mechanism of prescribing costs in England. Every family doctor will receive copies of summaries of their prescribing costs within 10 weeks of the end of the prescribing quarter, four times per year.

This system is scheduled to run live starting with April, 1988 prescriptions.

The manual prescribing information was subject to considerable delay - a 9-12 month wait for an analysis was common. This was a major impediment to prescribing counselling. I believe a low-cost opportunity to resolve this problem was overlooked from the mid 1960's to the early 1980's when the decision to computerise the PPA was finally taken.

This could have been achieved by using machine readable doctor numbers in printing, enabling the PPA to sort the forms at high speed and more than double the speed of production, probably also creating internal revenue savings. This would have dramatically improved the effectiveness of prescribing counselling. The costs of Family Doctor prescribing may have been substantially altered by such a development.

In the past the cost per patient has often been inaccurate in urban areas due to the problems of maintaining accurate manual registers with a highly mobile population.

There is minimal incentive for the public to inform an F.P.C. when they move out of an area and double registration can be a serious problem. Computerised registration systems are significantly reducing this.

Prescribing Counselling

The target of providing analyses to all Family Doctors 10 weeks after the prescribing month should provide a service which will stand comparison throughout the world, both in quality and cost terms. The main thrust of this is to stimulate an awareness of costs generated by the Family Doctor and encourage an analysis of possible improvement. The Herriott-Watt study showed a keen interest in this self-audit (or self-counselling) by a majority of doctors. Initially there was a statistically measureable impact on prescribing. However, this disappeared during the course of the study and seemed to show that some external reinforcement is necessary if self-audit is to have a significant impact.

An internal study of prescribing counselling by RMO's has shown that the savings are significant and the speedy service anticipated from the PPA should make this far more so.

The Regional Medical Officers spend a very low proportion of their time in prescribing counselling (over recent years about 5%) Their workload can be manipulated to increase this however.

In view of the new analyses about to emerge from the PPA it is appropriate that trials are taking place of full-time prescribing counselling RMO's in 2 English Regions. If the trials result in one such post for each English Region (14) the position starts to look more realistic. (1 RMO to 1,800 - 2,000 Family Doctors). However, this ratio still seems very low in comparison to Holland (1 counsellor to 800 Specialists and Family Doctors) and Germany (1 counsellor to 1200-1500 doctors in 1988 and possibly doubling the counsellors in the long term. *

This disparity is compounded by the fact that only high cost doctors receive their prescribing details in Holland and Germany. Moreover there seems to be a danger that unless the PPAs self audit analyses are backed by some form of personal contact, the potential of the subject will be largely dissipated.

This hazard may be met by the Governments programme in "Promoting Better Health", which envisages a positive new role for Family Practitioner Committees in encouraging economic and effective prescribing and local co-ordination centres to foster developments on local formularies etc.

The Herriott-Watt and McGavock studies both indicate that prescribing counselling may be cost effective for all doctors. The English system now has the mechanism to introduce this.

* Ratios approximate to take account of mixture of part-time and full-time commitment to counselling.

Choice of Professionals

The Regional Medical Officers have proved their cost effectiveness in counselling but nothing is known about their relative effectiveness by comparison with pharmacists. In Germany particularly, but also in Holland, there seem to be considerable problems in one doctor counselling another, because the discussion often tends to concentrate on diagnosis. The pharmacist avoids this problem by sticking to pharmaceutical considerations. This approach has been so successful in Germany's harsh commercial health care market, that 35 pharmacists are now employed and further major expansion of their number likely.

There appears to be a similar, but more slow moving trend, in Holland.

The considerable savings employing pharmacists instead of doctors are probably also a significant factor, and finally the doctors knowledge of pharmaceutics is likely to be inferior. This seems to be confirmed by the "trial RMOs" in England who have both opted to take pharmacological studies.

On the other hand, one of the prescribing counselling challenges is dealing with doctors whose high overall expenditure comes from issuing large numbers of prescriptions (possibly for cheap drugs) due to patient pressure or as a placebo. We should ask whether the pharmacist is, or can be, equipped to deal with this problem before policies are considered.

Monitoring of Drug Abuse

The intelligence available to agencies in this field is patchy and unreliable. Since a considerable level of abuse, especially of benzodiazepines, comes from originally legitimate prescriptions (and stolen ones) this is not an inevitable situation. Obviously this is a fundamental factor in the black market, but for "prescription led" abuse I suggest it is due to the potential data available in the PPA being generally unknown. The PPA itself is not resourced to handle this work, and currently has no authority to release information without prior DHSS (ministry) approval.

Two analyses are shown in this study, completed within the PPA. They appear to demonstrate reason for considerable concern about the usage of drugs liable to misuse.* This type of data would seem to present a logical starting point for investigations of "prescription led" drug abuse.

As far as I am aware similar analyses could not be produced elsewhere, without considerable expenditure.

The PPA also has the capability to substantially improve the accuracy of the Home Office addicts register.

* The legal controls on some of the drugs analysed (see pages 38-42) have changed (June, 1988). This may raise rather than lower concern about Family Doctor prescribing.

E N G L A N D

RECOMMENDATIONS

1. Security of Prescription Forms

The Department of Health and Social Security should consider making prescription forms difficult to forge and stolen ones dangerous to use by:-

a) incorporating a security mark on all or part of the form - the Germans use a pink fleck as in cheques.

b) prescription forms should be printed with the doctor and hospital details in machine readable numbers.

c) As a result of that the PPA and FPC's can co-operate in introducing a prescription stop-list system and speedy follow-up of stolen and forged prescription forms.

A detailed analysis of the proposals is given in Appendix I

2. Family Practitioner Committees (FPCs)

FPCs may find it financially attractive to collect prescriptions and forward them to PPA by carrier (or courier) for processing. At lease two FPCs already do so; the operation funded by the contractors. Where a courier service is already collecting from Family Doctors this should be particularly advantageous. (see Appendix II)

3. Prescription Pricing Authority (Processing)

a) PPA should assess the viability of purchasing high speed character recognition machines for numbering prescription forms.

b) PPA should seek support from pharmacists for a scheme which should assist pharmacists and enable PPA to reduce costs by £110 - £165,000 per annum.

This involves manufacturing boxes, one prescription wide, suitable to house prescriptions from the moment of dispensing right through processing. Cheap cards are provided to divide the doctors up and labels may be provided for each doctor. Empty space is filled by a (almost weightless) polystyrene block. Thus a filing system is provided for the pharmacist and productivity improved in several ways in processing.

This system is in use in Holland (see Appendix II)

c) The use of the Dutch 'Prescription Endorsement Schedule' should be considered. (For illustration see Text : Holland)

The concept is that on a single document the pharmacist describes his proprietaries in use. The Data-Entry operator keys this in before starting the batch.

In theory this could save the pharmacist having to endorse every form - a common source of dissatisfaction - and lead to greater accuracy and output at data-entry.

However, the radically larger number of drugs and the more complex remuneration system may make this an impractical proposal.

d) Consideration should be given to adopting the Dutch system of advance payments. This is based on a lengthy historical average (instead of only the previous month as in England), and eliminates major fluctuations. This would be highly advantageous to small businesses and would ease the pharmacists concern if the PPA has to issue 100% advances in the future. The cash flow to the FPCs would be stabilised which should reduce pressure in FPC's and DHSS.

e) PPA line managers may find it advantageous to have the use of precision industrial balances to verify the number of prescriptions in a parcel.

The German Regional Pharmacist Bureaux rely heavily on this facility. (see Appendix III)

4. Information Service

As a radically new system of providing prescribing information is due to go into operation in a few weeks from the time of writing, it would be inappropriate to comment on it in this report.

5. Prescribing Counselling

a) The Government White Paper - 'Promoting Better Health' - envisages an increase in resources devoted to counselling. This may need to be considerable if the potential of self-audit is not to be dissipated by the lack of any reinforcement.

b) A controlled trial should be mounted to ascertain whether prescribing counselling of ALL Family Doctors would prove cost effective (a routine visit every 2 years for example). Such a trial should also cover the success of different methods of approach, different professionals, different training regimes etc.

c) As an example of the options mentioned in 2/, it may be discovered that pharmacists could play a valuable role in counselling, more cheaply than doctors.

Special training in counselling and dealing with stress not currently available to R.M.O.'s should be considered to see whether it enhances results.

6. Expanded Role of Prescription Pricing Authority

a) Monitoring of Drug Abuse

i. The role of the PPA should be reviewed and trial links set up with Drug Abuse agencies (such as the Drugs Inspectorate).

ii. The agencies should be supplied with data available within the PPA.

iii. Funding should be identified for any longterm provision of such a service which could involve both considerable manual and computer commitment.

b) Monitoring Fraud and other illegal incidents

i. Trials should be run in the PPA to test the volume of fraud etc, which PPA staff can detect by the training of clerical staff and their deployment to cover this specialist work.

ii. Funding on a long-term basis would need to be specifically identified although costs should prove modest.

There is likely to be a considerable inter-relationship between Monitoring Drug Abuse amd Monitoring Fraud and to avoid double handling, it would seem logical to combine the two roles.

H O L L A N D

CONCLUSIONS

General

Dutch Health Care is mid-point in structure between England and Germany. A significant private sector exists. The public sector is based on health insurance with each area having a single fund - a total of 40 nationally. Germany by contrast has 1,186 insurance funds which are competing for business. The Dutch funds contract with independent health care professionals, as do Family Practitioner Committees in England. In Germany the contracts are made between the professionals associations and the different funds.

There are 3 especially striking aspects of the Dutch pharmaceutical system:-

a) the patient-pharmacy registration system.

b) the very limited range of drugs and appliances.

c) the simple payment structure.

This combination has fundamental implications for prescription processing.

Health care expenditure is comparatively low by comparison with other industrialised nations, but costs are rising faster than is considered acceptable. Dutch doctors seem to contribute to the low level of expenditure with their reputation as reluctant prescribers. The number of prescriptions per person matches the pattern.

Up to now there has been little control of doctors distribution or penalties for contract breach. This has left the local health funds with no mechanisms for restraining spending. This position is now being changed.

Patient-Pharmacy Registration System

Patients register with a pharmacist as they do with a doctor. This is likely to have a significant effect on illegal prescriptions, and on information services (see below).

Prescription Printing

As in Germany the doctor details are entered at the printing works, which also reduces crime and assists data capture.

Prescription Processing System

There are few economies of scale for the Dutch prescription processing bureaux (RUCB). The largest bureaux deal with 120-130 accounts. By comparison the Regional pharmacists bureaux in Germany deal with 2,000-5,000 pharmacists. A processing

office of the English P.P.A. deals with 600-1,300 pharmacists. In fact the total number of pharmacists in Holland is only 1,300. It was noted that many data-capture staff work part-time, and the terminals are not used for the remainder of the working day. Thus accommodation, equipment, computers, all appear to be greatly under-utilised. The costs of the RUCBs appear to exceed those of the English processing system by 200% to 250%.

It is common practice for health insurance funds to pay pharmacists for submitting their prescriptions on computer diskettes. Those who continue to use the co-operative bureaux have to fund it.

These factors, and the structure of the pharmaceutical system (see General conclusions) are combining to drive the R.U.C.B's out of business. It is difficult to envisage a long-term future for the Bureaux, unless there are significant changes in the factors involved.

One exception to this is the possible need for a facility to capture data on the prescriptions of dispensing doctors. Few such doctors have their own computers.

The Dutch bureaux pay a 100% advance based on the pharmacists average payments for the 2 previous years. They consider this is accurate to within 2%. This removes the need to work to a deadline for paying pharmacists, and in fact data-capture is often considerably in arrears (see Information services below). The data capture system used is slow and inefficient, with outputs by V.D.U. operators a maximum of approximately 1,300 prescription items per day. There are, however, some aspects of the Dutch processing system with potential for improving the efficiency of other countries. These are:-

a) the advance system

b) the box "filing" system for presenting the prescriptions (see text on Holland and Appendix. II..)

c) the Receptuur Gegevens Lijst (prescription endorsement schedule)

There appear to be no targets for V.D.U. output.

Information Service

The patient/pharmacy registration system reduces the volume of "Leaked" data* to a minimum. "Leaked" data presents a particularly difficult problem where there is no central co-ordination.

The information captured about doctors prescribing is available for counselling only in the form of tables which does not enhance the interest of doctors who have problems with their prescribing.

* "Leaked" data is the term used in England for patients taking their prescriptions out of the area where their doctor is registered in contract.

In view of the simple payment structure, and the lack of leaked data, it would seem reasonable to assume that the R.U.C.B. would be well up to date with the data capture. In fact this is frequently not the case. Delays of 6-9 months are not uncommon.

At present, information is produced only yearly so that problems are created for counselling (see below). However this situation may change in the near future.

Prescribing Counselling

Personal contact is considered crucial as the means to influence the pattern of prescribing. This activity is politically essential due to rising costs, and peer group discussion and personal interviews are both used extensively. Counsellors receive no formal training. A number of funds now employ pharmaceutical advisers who join in prescribing counselling, in support of their medical advisers.

Despite the interest in the subject however, there are no criteria to demonstrate the success, or otherwise of counselling or different counselling professionals.

Delays in the provision of data seriously impede the counsellors in their work, due to loss of credibility, and may even cause the counsellor to abandon the prospective session.

H O L L A N D

RECOMMENDATIONS

1. Prescription Processing System

i) The data capture speeds of Recepten Uitreken Controller Bureaux are capable of radical improvement. I believe this is likely to be a relatively cheap exercise. Nevertheless the precarious future of the Bureaux could make the effort highly questionable. In the brief study I have made I am not qualified to address that question. I can only comment that if a long-term data-capture facility is desired (perhaps for dispensing doctors), such a development would prove highly cost effective and beneficial.

ii) The delays in data-capture are a serious impediment to effective prescribing counselling and measures to bring the Bureaux up to date are highly desirable. The options seem to be:-

a) recruit staff to use all terminals for the whole day.

b) exchange prescriptions between Bureaux in arrears and those which are up to date.

c) abandon checks on computerised data submitted to RUCB's.

d) abandon 100% data-capture until the Bureaux in arrears is up to date (change to 20% - 30% data-capture for this time).

Option b) was used as a standard procedure during the computerisation of the English and Welsh processing organisations.

Option d) appears feasible with the accurate advance system used in Holland. The number of prescription forms can be verified by using the German weighing system. (see text 1 Germany: The Prescription Processing System. 2 Appendix III).

Full processing can be used for pharmacists whose prescription intake or historical costs fluctuate significantly.

2. Information Services

Health Insurance Funds should consider the possibility of presenting prescription data in graphic format which appears to enhance the interest in it by the prescriber.

Every effort should be made to produce the data for the prescriber quickly (say within 12 weeks) - see above.

3. Prescribing Counselling

A proper study should be mounted, using control groups, to demonstrate the effectiveness of this activity, which techniques have most impact, and which professionals have the greatest success rates.

There are some indications that counselling ALL doctors may prove productive and cost effective. This should be tested.

G E R M A N Y

CONCLUSIONS

General

The West German Health Care system is extremely complex and this introduces special difficulties in prescription processing. The pharmacists Regional Bureaux appear to enjoy significant economies of scale and are well positioned to cope with changes in national policy practice, technology etc.

The system of printing prescription forms could provide a most useful example in England.

Paying Pharmacists

The methods of payment are quick and economical. There are a number of techniques which should prove useful elsewhere.

However, there are 2 main reservations about the existing system:-

a) There are significant troughs in the operational cycle which appear to raise costs considerably.

b) The cost of incorrect claims by pharmacists (as found by Insurance Funds) appears to be less than the cost of processing.

I believe processing costs can be reduced and suggestions as to how this may be achieved are given in Appendix V These are excluded from the main recommendations because I prefer a more radical solution (see below).

Data Capture

Unfortunately the method of paying pharmacists retains no information about the items dispensed. This is in sharp contrast to England and Holland. The payment system is unsuitable for monitoring the costs of drugs etc., and influencing doctors prescribing patterns.

Data capture is therefore a repeat processing procedure and costs are therefore greatly increased and considerable delays incurred in making the data available (for consequences of the latter see below).

In addition, the methods used are inefficient and slow. The cost varies from 180% to 400% more than in England,* depending on the Regional Bureau involved. Data capture in England is twice as fast.

The current objective in Germany is to achieve a data capture level of 10%. The likely cost of this appears to be at least £10 - 12 million (30-35 million Deutsch Marks). I suggest

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* The comparison should be treated with caution due to differing standards (e.g. wage levels) and the variable currency exchange rates. However all the indicators do point to the conclusion stated.

this expenditure is unnecessary. Indeed much higher levels of data-capture can be achieved without such expenditure and £10-12 million extra may fund complete data-capture by the Regional Bureaux or the Regional Bureaux and commercial agencies.

I believe 10% data capture could be achieved by modifying the existing pharmacist payment system. Higher levels of data capture would require a more radical approach but should give a bigger reward.

Although this report deals only with the pharmacists Regional Bureaux, there is probably no reason why commercial agencies should not follow the same pattern thus expanding the volume of data capture.

An alternative approach would be to reduce the Regional Bureauxto fully checking only a fraction of pharmacists accounts (10% on rotation) and assessing the rest on weight and historical average.

The doctors would then be machine sorted and those required by Insurance Funds would be forwarded for data-capture at the Fund.

This concept would:-

1. Speed up data-capture in comparison with present practice.
2. Reduce costs of pharmacy payment system (cut staff by 60%)
3. Maintain quality control on pharmacists claims which do not seem to need full checks (in general)

However, I believe this would be a negative development for the following reasons:-

1. Data capture efficiency would be extremely difficult to achieve at 1,186 different Insurance Funds.
2. The additional hardware is likely to be prohibitively expensive or if existing hardware is used in many cases would prove highly limiting.
3. The cost of data capture is therefore likely to be higher than it is at present, due to losing all the economies of scale.

Information Services

In Germany comprehensive information about a doctor's prescribing is difficult to obtain and will always need special provisions. For example prescriptions from a Stuttgart doctor could end at a Dusseldorf pharmacist. The Regional Bureau will be different. The Dusseldorf Bureau will bill the Stuttgart Insurance Fund and send them the prescription(s). Because the Regional Bureaux are not normally linked retro-spective data-capture is the obvious procedure.

However, if data-capture is to become cheaper by taking over the pharmacy payment system, it may be necessary to resolve this if there is significant movement of patients.

Doctors may show great interest in data about their prescribing patterns. However, the existing tabular format is unlikely to enhance this.

Prescribing Counselling

The majority of areas continue to operate a quasi-legal system designed only to recover money from very high-cost doctors. This is considered to have serious limitations and seems likely to be progressively abandoned in favour of an individual approach and discussion where possible. Substantial progress seems to be underway which may prove highly effective in controlling costs. The results are encouraging, but have not been measured.

The German experience should be considered in England (and perhaps Holland).

A major drawback is the existing speed of data provision. The present system has an inbuilt delay which reduces the impact and credibility of counselling.

GERMANY

RECOMMENDATIONS

1. Pharmacist Payment/Data Capture

Pharmacy payment systems should be modified to devote all the possible staffing input to Data Capture. Pharmacists would be paid on their claim, the number of forms being verified by weighing the prescription forms, and also by using the Dutch system of average costs over a long period which appears to give accurate results.

Each sorted insurance fund could be billed on the same basis. Any significant variations in pharmacists claims, or prescription intake would indicate full data-entry for that account. A new pharmacist would normally be processed through full data-entry for several months to establish a pattern.

The majority of data-entry would either be by selection of pharmacies on rotation, or by selection of doctors - probably high-cost-through the fast document readers.

If approximately half the Bureau staff can be transferred to data-capture it would be possible to process 1/5 of prescriptions in this way at existing German speeds FUNDED BY THE PHARMACISTS LEVY.

In England approximately 70% of the staff would be working on data-capture. If this can be replicated it should achieve a data-capture level of 30% at current German speeds.

However I would recommend changes in system design and management control which ought to double that level of data-capture. Indeed English speeds at current Bureau staffing levels would indicate a data-capture level of ⅔ (66%) may be attainable.

The calculations to demonstrate this are shown as Appendix VI and an estimate of the capital cost.

It is recognised that there may be reservations about the Regional Pharmacists bureaux taking a leading role in data-capture. A central checking facility could deal with this problem. Alternatively the Dutch model could be used with the Insurance funds represented on the Board of Directors.

2. Health Insurance Fund Checking

It is understood Funds have their own prescription checkers aiming for a 10% sample of forms. It is likely that efficiency savings could be made by dividing this task up and establishing a central agency, possibly in each Region.

This might work as follows:-

1. Sample of forms to Insurance Fund to check patients financial status.

2. Sample of pharmacists accounts to a central agency to verify Bureau pricing and accuracy of dispensing.

This would be analogous to the English system where pharmacists fund a bureau to check the pricing and payment of their accounts.

This should be done by rekeying an account and then running a program to compare both batch results. The differences can be examined on a print or on screen in some cases. Rekeying speeds should be comparable to England. The print comparison is an extra process.

This should also enable checks on the patients financial status to be speeded up.

3. Information Services

Health Insurance Funds should consider the possibility of presenting prescription data in graphic format which appears to enhance the interest in it, by the prescriber. Processing savings might fund such a development, but producing it generally and regularly has not been costed. I am not in a position to comment on whether it might prove economical. This could be another role for a central agency (as suggested above) producing the actual analyses after data-capture.

The data keyed by a Regional Bureau probably needs to be supplemented by "leaked" data (i.e. where a patient travels out of the area) and any captured by the commercial agencies to give a comprehensive picture of prescribing. This could also be a role for a central agency. Alternatively all Regional Bureaux could exchange "leaked" data and commercial agencies could transmit captured data to the Regional Bureaux.

4. Prescribing Counselling

A proper study should be mounted, using control groups to demonstrate the effectiveness of this activity, which techniques have most impact, and which professionals have the greatest success rates. There are some indications that counselling ALL doctors may prove productive and cost effective. This should be tested.

PART VI

APPENDICES

ENGLISH PRESCRIPTION FORMS

- PROBLEMS AND PROPOSALS

Problems

At the time of writing there a number of problems with the production of forms. Some of these are quantifiable and can be expressed as costs. Others are possibly serious, but can be described only vaguely.

1. Security

a) Forgeries

English forms are relatively easy to forge as they have no security markings. Good quality forgeries have been discovered recently, and the extent of the problem is unknown, because there is no system for identifying them. It may be that they are costing the NHS millions of pounds, or only a few thousand.

The ease of forging the form is compounded by the fact that anyone can (quite legally) purchase a rubber stamp from a stationer or printer, showing the name and address of a doctor, and a six digit number to identify the doctor in the national records. He can then stamp his "own" forms. Hand-stamping of the doctor details is standard practice in the Family Practitioner Committees.

b) Stolen Forms

The number of stolen forms per year is impossible to identify because the forms are not numbered. It is standard to have 100 forms in a pad, and it may sometimes be reported that half a pad or one whole pad has been stolen, but generally reports from doctors indicate only that an unknown quantity is missing.

The standard practice is for the doctor to write in red for the next 4 weeks, but this appears to have little impact, since the forms can be taken out of the immediate area, where pharmacists are familiar with the situation.

Theft reports are incomplete, but a sample survey of FPCs suggests a possible increase of 60% over the last two years.

Is not known whether this represents a loss to the NHS of £200 - £300,000 or millions of pounds.

c) Detection

The existing format makes detection by the pharmacist, and Prescription Pricing Authority, very difficult, and it would seem to be the

exception, not the norm.

Successful intervention by the police appears also to be the exception rather than the rule.

d) Drug Addiction

The present situation appears to be one which contributes to, rather than deters, drug addiction and all the social costs and disruption which this causes.

It is known that a significant amount of prescription form theft is carried out by drug addicts.

2. Costs to Family Practitioner Committees (FPCs)

The cost of stamping the prescriptions forms used by Family Doctors varies greatly from one FPC to another. There are 4 common methods :-

i) using a local institution (such as adult training centre or hospital)

ii) hand stamping by FPC staff

iii) using Pitney-Bowes totometers

iv) printing by the prescribers computer

Because of this diversity the cost is impossible to gauge accurately. As a result of a telephone sample survey with FPCs it seems likely that the national cost is £150,000 - £250,000.

3. Costs to Prescription Pricing Authority

The diversity of methods used by FPCs creates problems with the quality of the stamp. The productivity of the system is affected by the delays resulting from checking the doctor number which is essential for the information service.

The PPA has not made a detailed study of this problem. A limited survey did suggest that 4% of prescription forms are poorly stamped. It is not known whether this reduces productivity by the same percentage (worth £200,000) or by a greater or lesser extent.

Hospital Forms

The PPA is required to return all such prescription forms to the originating District Health Authority (i.e. hospital management). The sorting of forms into each hospital is done manually and costs the PPA approximately £37,000 per year.

The procedure is very time consuming and complex because the dispensing frequently takes place a long

way from the hospital (a type of "Leaked Data").

The quality of stamps used by hospital managers is very variable and the numbers shown may be unreliable. It is hoped to overcome the latter problem by developing unique codes down to individual hospital specialists.

OPTION APPRAISAL

Proposed System - Option 1

Summary

This proposal is wide ranging and appears to offer high benefits in crime prevention, detection and cost reduction. Additional finance is necessary (net £1.0 - £1.5 million) to achieve the improved use of public resources which I propose.

a) Security Marking

The West Germans use a pink fleck on prescription forms similar to cheques, having recently discovered that their forms were being forged. This can be introduced for £70,000 or less (for 350 million forms) in conjunction with the proposals below.

b) Central Printing of Doctor Details

This could be done using conventional print which would help cut FPC and PPA costs, and improve security. However, major security improvements and considerable cost savings at PPA could be achieved by using MACHINE READABLE PRINT. This takes the concept used in Germany and develop it further for English use.

Details Required — Doctor Identity Number; Sequential Number on each form —) In Magnetic Ink Character Recognition Font. (MICR)

Stage 1 — Doctor details to security printer
Hospital details (for FP10 HP) to security printer

Stage 2 — Prescription forms to hospital and either to FPC or doctor direct (as in Germany)

Stage 3 — PPA notified of forms issued.
Information recorded on main-frames.

Stage 4 — Prescription form completed by Doctor and items dispensed.

Stage 5 — Forms received at PPA and read by high speed machine readers, which simultaneously number each form in the pharmacists account using high definition ink jet printer. In continuous running speeds of 140,000 forms an hour may be possible - 8 times the theoretical speed of existing equipment (see costs)

Stage 6 — Form numbers transmitted to mainframe to compare with forms issued - Investigate Discrepancies for Forgery. Doctor

numbers transmitted to data-capture equipment. Total number of forms processed recorded (automatic registration).

Stage 7 — Data-capture - doctor details already available in memory and automatically displayed, with no requirement for operator to key in.

Occasional verification of correct numbers.

Data capture speeds may improve significantly by this system change - 5% would save £270,000.

Reduction of disruption should also raise outputs (see above).

Stage 8 — Hospital forms to be machine sorted (see above)

Stage 9 — Stolen forms - FPC notify PPA of theft and forms remaining with doctor. PPA compare remaining stock with forms already received and produce a stop-list.

Stage 10 — Pharmacists examine forms for the doctor(s) stated and refer any on stop-list to FPC. FPC investigates whether genuinely prescribed before theft.

Stage 11 — Any stopped forms received at PPA will be detected by main-frame program and can be immediately referred to FPC

Cost Benefit Summary

Costs Incurred	Benefits and Savings
Additional printing costs up to £2 million per year	**Benefits**
Machine readers £450,000 to £900,000 (purchase) depending on decisions on centralization and achievable speeds.	Major deterrent to theft and forgery
	Major assistance to detection of theft and forgery.
	Hospital forms available 7 weeks after dispensing month
Additional hardware and software development costs in PPA (not quantified).	Very high level accuracy on doctor number
	Savings
	F.P.C.s - staff time etc in stamping — est. £200,000 ?
	PPA / Registration — Improvement in numbering productivity — 50 - 100,000
	PPA / Registration — VDU operation discontinued — 13,000
	Data Entry — Improvement in clarity of form number — 100,000 ?

Costs Incurred	Benefits and Savings	
	Data Entry — Automatic doctor number display at data-entry and no loss due to poor stamps	? £270,000
	Hospital Forms sorting	37,000

TRIAL

A trial of this approach would be practicable without major expenditure.

This might operate as follows:-

1. Lease or purchase one high speed character recognition machine (£100,000 or less to purchase).

2. Supply a small number of Family Practitioner Committees (say 5) from one locality with the appropriate prescription forms.

3. All forms from trial FPCs are fed through machine. Any without magnetic ink details will be rejected.

4. Two or three data-capture systems are dedicated to processing the trial forms. If the capacity of the systems are inadequate the trial forms can be processed elsewhere.

5. Forms without magnetic ink are set up as 'A' batches on different data capture systems and combined by supervisors after data-capture.

   This facility is now available as standard. It is used to ease work-flow especially with large accounts.

This approach would test the practicality of this proposal and its implications for productivity in the PPA. The mechanics of the Stop List system could be tested. It seems doubtful whether the Stop List proposal itself can be validated without introduction over perhaps a quarter of the country, due to the volume of 'Leaked Data'.

Nevertheless the use of high-speed machines in PPA could remain cost-effective purely to number prescriptions and register the totals on the main frames.

The major variable is the attainable speed in live running. The PPAs present machines achieve only 40% of their potential at continuous running. This is partly due to the operator stopping to untie the parcel, completing paperwork etc.

Using this technology the paperwork would be automated.

The proposal to modify the method of submitting the parcel detailed in Appendix II could also have a significant impact on the actual attainable outputs on these machines.

If an output of 100,000 forms an hour can be achieved, the cost savings for the whole PPA should total £100,000.

The capital cost of £900,000 , for a machine at each location, could be reduced by a degree of centralization of the numbering function.

However, there would then be considerable carriage costs between different sites. Trials would be required to determine the viability of each site having its own equipment or what degree of centralization would be appropriate.

Option 2

Summary

This option is also wide-ranging and of high benefit and may be more flexible and more amenable to local circumstances. It envisages the same operational system, with lower running costs.

a) Security Marking

The printing could continue to be carried out by a government agency (currently DHSS), but this might make it impractical to add a security mark.

b) Printing of Doctor Details

The FPC's could print the details (as set out in Option 1) using micro or mini-computers and a high quality laser printer.

This should substantially reduce their current costs of stamping prescription forms *

The stop-list system could operate as previously described. In many cases it may be possible to link the existing FPC computers to the proposed laser printer.

c) Hospital Forms

The printing of hospital forms with machine readable type would be cost-effective if printed commercially. However, the local FPC's could possibly undertake this task on an agency basis for health authorities.

d) The role of the PPA would be unchanged from Option 1, except that central co-ordination of form serial numbers may be required, and this could be a suitable role for the PPA.

It might be possible to make the serial numbers exclusive by using a short title for each F.P.C. (e.g. DUR or DHM - Durham) thus making liaison unnecessary. This would be determined by the capability of the printer.

Laser Printer Capacity

At present there appears to be no machine on the market capable of running prescription forms of the current size, with the volume necessary. The largest FPCs will require approximately 600,000 forms per month.

However, there may be a machine available which could run A3 or A4 sheets at adequate speeds. If the forms were printed on a large sheet with perforations, this might prove feasible.

* One FPC is about to go live with this concept but using a cheap printer and ordinary type. Their initiative has been generated largely by concern about stolen prescription forms.

The largest output machine costs roughly £21,000. Small FPCs may be able to cope with perhaps 2 small laser printers using the same principle. The maximum advised output for such printers is 15,000 sheets per month.

It would probably be necessary to adjust the size of the prescription form or even redesign it.

The capital cost is considerable, but the running costs should make a significant saving.

Cost Benefit Summary

Costs Incurred		Benefit and Savings	
Capital		Benefits	
Purchase of Laser Printers	£1.5 - £2 million	- Major deterrent to theft and forgery	
Machine Readers (depending on decisions on centralization and achieveable speeds)	£450,000 to 900,000	- Major assistance to detection of theft and forgery	
		- Hospital forms available 7 weeks after dispensing month	
Additional hardware and software development costs in PPA (not quantified).		- Very high level of accuracy on doctor number	
Running Costs		Savings	£
Laser Printers	£ 90,000	FPCs - staff time etc. in stamping	200,000
Extra cost of hospital form printing (commercial)	10,000	PPA	
		- Improvement in numbering productivity	50-100,000
		- VDU operation discontinued	13,000
		- Improvement in clarity of form number	? 100,000
		- Automatic doctor number display at data-entry and no loss due to poor stamps	? 270,000
		Hospital forms sorting	37,000

Option 3

This option could achieve some of the benefits of Option 1& 2 but it appears less satisfactory, requiring very close liaison with FPCs, retains some of the problems identified originally and introduces unnecessary complexity.

The bulk of the proposal is the same. I have listed only the differences.

1. Printer dispatches blank prescriptions to PPA

2. PPA prints forms with alpha-numeric numbers which are recorded on the main frame.

3. PPA sends forms to FPCs or District Health Authorities (hospital forms) who issue them and notify PPA who has received which numbers.

4. Information from FPCs/DHAs recorded on main frames

   Rest of stages as for Option 1

This proposal would remove the additional printing costs as outlined in Option 1. Only capital expenditure by the PPA and limited extra duties for FPCs. I feel it is less satisfactory to rely purely on a form number to generate all stop list data. The programs would need to be continually cross referencing form numbers and doctor numbers.

The disadvantages of the present stamping system would be retained.

Option 4

This option is very limited and does not seek to influence crime detection etc. It is discussed purely as a means of improving productivity and service in the PPA.

1. Character Recognition Use

a) Hospital Form Sorting

As part of a package contract for printing all prescription forms with magnetic ink characters this application would be self-financing in approximately 3½ years.

As a single application the payoff time would probably exceed 5 years for purchase of a machine.

This however ignores the benefits to District Health Authorities of fast return of hospital prescription forms (target would be 7 weeks from the end of the dispensing month).

Nevertheless, the most commercial option for a single application would be to contract the machine sort out to a bureau as it should only use 3/4 hours machine time per month.

b) Doctors Remuneration for Dispensing

Doctors submit batches for payment for dispensing (in rural areas) and for personal administration of drugs (e.g. for vaccines).

The doctor identity number is now used for payment as well as for the information service. The number of forms submitted is frequently small and there are therefore frequent changes of doctor.

Two problems therefore arise:-

i) the quality of the stamp

ii) the additional pressure on data-capture staff to key the number with absolute accuracy.

Prescription forms with the doctor details in magnetic ink would enhance the accuracy of payment and improve productivity in the PPA.

The system would operate as described in Option 1 with the high speed reader and details transmitted to the data-capture system to confirm the doctor number sequence, and to the main-frame to "register" the account.

Productivity would thereby be enhanced in numbering and registration - possibly £15 - £20,000 per annum. There should also be a significant potential for productivity improvements at data-capture and on subsequent checking procedures. Due to small batch sizes this could be considerable but would need a trial before any figures could be quoted.

The additional printing costs seem likely to be in the region of £100,000. The net cost increase may prove marginal.

APPENDIX II

TRANSFER OF PRESCRIPTIONS FROM CONTRACTORS TO PPA

A. Method of Carriage

It was noted in Holland and West Germany that the use of couriers is popular to take prescriptions from the pharmacy to the processing bureau.

It seemed appropriate to investigate the economics of doing so in England. This was stimulated by the loss of a parcel in the English postal system. Englands biggest pharmacy contractor moves all prescriptions using its own courier system.

1. Loss and Damage Incidence

All PPA offices were asked to record the incidence of problems of loss and damage for 3 months.

The results are as follows and includes prescriptions from dispensing doctors:-

PPA Office	No. Damaged Parcels	No. with Missing Px	No. Lost Parcels	No. Lost Px Forms	
Bridge House	124	38	1	806	Dispensing Doctors
(Newcastle)	31	3	-	1050	Pharmacists
Bolton	6	6	-	88	
Durham	6	6	1	1202	
Liverpool	-	-	-	-	
Manchester	4	-	-	-	
Preston	2	-	-	-	
Sheffield	4	1	-	22	(13 found by Post Office)
Wakefield	1	1	-	37	
West Bromwich	2	-	-	-	
TOTALS	180	47	2	3205	

The number of lost forms is 0.00534% or one form in 18,700; one per nine pharmacists in 3 months.

2. Postal Service Problems

Postal delays can cause considerable problems but the loss and damage is not normally a problem except possibly with prescriptions from dispensing doctors. Poor packing compounds problems with dispensing doctors forms.

Economics of Courier and Royal Mail

English pharmacists use a variety of Royal Mail services mainly parcel and first class letter post, but also recorded and registered services to give them additional security. The costs of parcel and first class letter post are shown below:-

No. Forms	Parcel Post £	1st class letter post £
1,000	1.50	1.45
3,000	2.35	4.55
6,000	2.70	7.70
10,000	3.25	14.00

The PPA has a contract with a National courier company to move prescriptions in bulk when necessary. The costs between 2 fixed points are as follows:-

FPC A	-	81 contractors	-	139 kg	- £41.80	- £0.51 per contractor
FPC B	-	214 contractors	-	382 kg	- £90.40	- £0.42 per contractor
FPC C	-	47 contractors	-	95 kg	- £33.00	- £0.70 per contractor

One FPC in a comparatively urban area receives pharmacists parcels at its office and transfers them to the PPA by hired car. The Local Pharmaceutical Committee pays a fixed sum and the FPC retains a useful surplus. The DHSS have advised the FPC that this income can be retained.

The contractors would probably be less enthusiastic about travelling to the FPC office in a rural area or larger FPC. However some FPC's find it economical to run their own courier service to doctors surgeries and other contractors. In this situation FPC's might well find themselves in a position to generate new income by offering contractors this service.

The PPA registration procedure is speeded up and simplified when all contractors prescriptions in a particular FPC arrive in one batch.

B. Presentation

It was noted particularly in Holland that the pharmacists present their prescriptions ready for processing (see text on Holland) and no further attention is required to its presentation by the bureau. This contrasts markedly with England where the PPA has to devote about £175,000 per annum to initial preparation* e.g. resorting into correct order, removing staples etc.

The English prescriptions are tied up with string during initial preparation. This has to be tied and re-tied every time it goes to another processing section, or is left in mid procedure at night. This makes at least 7 occasions per parcel, and each occasion probably averages at least one minute.

* Based on Internal Management Survey (1986)

With 11,000 parcels from pharmacists to process monthly, it is estimated that the tying and re-tying costs the PPA at least £50,000 per annum.

Box Filing System (see text : Holland)

Changing to the Dutch system will provide a simple but effective method of filing prescriptions completely ready for dispatch, giving considerable savings in pharmacists time and effort.

Saving The gross saving which can be identified is £180,000 being a 75% productivity increase in the initial preparation ("docketing") of the parcel, and ending its tying and re-tying.

Offsetting Costs and Problems

Additional expenditure may be necessary in 2 or 3 ways which would reduce the savings.

a) Good quality cardboard boxes of appropriate sizes.

b) Additional postage or carrier costs in recycling boxes back to pharmacists.

c) Additional long-term storage or facilities to re-pack prescriptions for that purpose.

a) Cardboard boxes

The requirements for sizes of boxes and their quality would need to be tested and proved in a live trial. However, for the purposes of obtaining preliminary costings I gave 2 local box manufacturers the following specifications:-

i) choice of "one trip" and "returnable" boxes.

ii) boxes to knock flat and re-assemble

iii) tuck in flap

iv) Dimensions - small 300mm(l) x 180mm(h) x 100mm(w)
- medium 300mm(l) x 180mm(h) x 200mm(w)
- large 600mm(l) x 180mm(h) x 200mm(w)

The prices are:-	One Trip	Returnable
Small	£124 per 000	£142 per 000
Medium	£157 per 000	£187 per 000
Large	£407 per 000	£447 per 000

The prices are based on 15,000 of each quantity. There would be a one off tooling up charge for each size of box (£100 each)

The cost of using one-trip boxes therefore appears to be in the region of £31,000 on the basis of 130,000 submissions by pharmacists annually.

The returnable boxes however would cost £11-12,000 per annum, on the basis of 3 trips per box.

Further consideration would need to be given as to the treatment of very small batches of prescriptions from pharmacists, dispensing doctors, appliance contractors etc. (i.e. less than 300 forms). With appropriate security it may be possible to put several accounts into a single box on arrival at PPA.

b) Additional Postage or Carrier costs

If it is decided to recycle boxes after processing, the PPA would need to return boxes to pharmacists, or to FPC's for re-use. In fact the cost of this should prove minimal because virtually every contractor receives mail from the PPA each month and an empty returned box should not increase postage costs significantly.

An alternative would be to dispatch boxes in bulk via carrier to FPCs - perhaps 3 times per year, so that they forwarded boxes to the contractors.

The first option could create mailing room congestion in the PPA, the second in FPCs, but "knock flat" boxes may help in this respect.

Provisional Cost Estimate £3,000 (representing a 10% increase in costs for processing division postage)

c) Long Term Storage Arrangements

The cardboard boxes could be used for long-term storage, without any further procedure. However this must create wasted space, which might then necessitate the purchase of additional warehouse capacity.

It is not possible to quantify the effect of such a change without live trial. However it is possible to quantify the costs of repacking the prescriptions.

Two options have suggested themselves using modern machinery - polypropylene strapping
shrink wrapping - using PVC film or polythene.

Both wrappings have the necessary strength for heavy batches of prescriptions, but polypropylene strapping may be too inflexible for small batches. Shrink wrapping has the advantage of giving complete protection from dust in long-term storage. Strapping machines can be purchased for £1,700 or less and a 2 machine shrink-wrap combination for £3,785 or less. Prices exclude VAT.

The time committment is at present unknown, but as it may be necessary to pack away 200 batches a day to storage at certain periods I have included a precautionary staffing component (0.5 whole time equivalent per division or packing site)

Provisional Cost Estimate - Capital £17,000 - £40,000
Revenue £20,000 - £37,000
(staffing & polythene film)

The cost ranges depend on the level of centralisation selected.

Conclusions

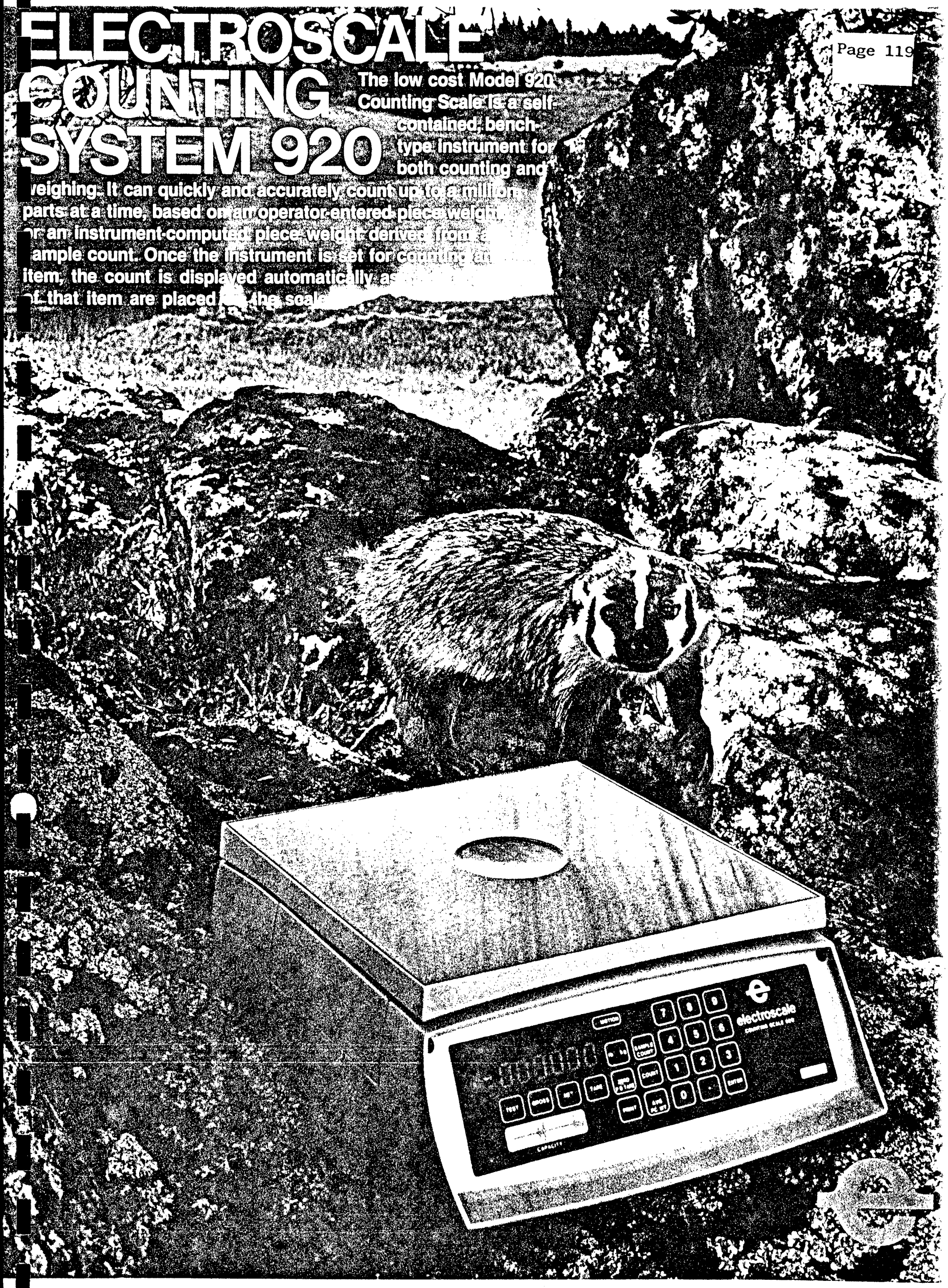
1. The incidence of loss of prescriptions in transit is small but significant numbers of dispensing doctors batches are damaged. Alternative methods of carriage would be worth consideration.

2. FPCs could generate useful amounts of income by accepting pharmacists parcels centrally and using carriers (or courier) to forward prescriptions. This would assist PPA.

3. The PPA can achieve substantial cost savings and pharmacists savings in time and effort by adopting the Dutch method of presenting prescriptions for processing. The savings will depend on variables (such as impact on storage) which can only be tested in a live trial. It is suggested that net revenue savings will be in the range £110,000 - £165,000 per annum.

ELECTROSCALE COUNTING SYSTEM 920

The low cost Model 920 Counting Scale is a self-contained, bench-type instrument for both counting and weighing. It can quickly and accurately count up to a million parts at a time, based on an operator-entered piece weight or an instrument-computed piece weight derived from a sample count. Once the instrument is set for counting an item, the count is displayed automatically as [illegible] of that item are placed on the scale.



APPENDIX III

Checking the Number of Forms received for Processing

It was noted that West German Processing bureaux routinely weigh all batches of prescriptions submitted. Using precision industrial balances they are able to confirm the number of forms submitted to within 4, whatever the size of the account (i.e. 800 or 18,000)

The method used is to weigh a sample of the forms, to eliminate errors from differences in moisture content. The complete parcel is then weighed and the total read off the digital display.

This concept would have been immensely valuable in England before computerisation. Now, however, the PPA uses electronic numbering machines, which when working reliably, give an accurate figure for the number of forms received.

The machines were developed specially for the PPA but have had considerable problems and as a result themselves introduce discrepancies. These can take a considerable time to rectify by manual checking.

It was therefore decided to mount a short trial using the same equipment type as used in Germany. In England the PPA receives prescriptions banded by elastic bands and paper clips and with a number of different weight forms possibly included. Nevertheless the trial gave accurate results using a leading suppliers scale loaned for one week.

As this balance is relatively expensive I also decided to test a shop quality scale. This gave results which suggest extended trials would be worth doing for any manager in the PPA who feels this approach would assist him. In this case the calculations are done separately by the checker.

Costs	Precision Industrial Balance	£800 - £915 each depending on quantity ordered.
	Electronic Shop Scale	£400 - £500 each depending on quantity prdered.

(see illustration)

It is possible this technique may also be of use in Holland (see recommendations)

INFORMATION SERVICES

PRESCRIBING INFORMATION LEVEL I

FOR QUARTER ENDED DEC 1987

Attn: Dr SAMPLE G.P. 921001123456
Dr SAMPLE G.P. 921001234569 + PTNRS
SCOTTISH LIFE HOUSE
ARCHBOLD TERRACE
JESMOND
NEWCASTLE UPON TYNE
NE2 1DB

JESMOND AND SOUTH GOSFORTH FPC

1. Practice Prescribing Costs

Practice	£8,427
FPC Average	£6,743
National Average (England)	£7,592

Practice is above the FPC Average by

£1,684 or 25%

(and is above the National Average by £835 or 11%)

2. Practice Number of Items

Practice	1,720
FPC Average	1,454
National Average (England)	1,616

Practice is above the FPC Average by 266 or 18%

(and is above the National Average by 104 or 6%)

3. Practice Average Cost Per Item

Practice	£4.90
FPC Average	£4.64
National Average (England)	£4.70

Practice is above the FPC Average by 5.6%

(and is above the National Average by 4.3%)

SEE BACK PAGE FOR YOUR OWN PRESCRIBING INFORMATION

4. Practice Items and Total Cost by Major Therapeutic Group

Quarter Ended Dec 1987

	Number of Items	Practice is
Cardiovascular System	481	+25%
	385	
Musculoskeletal and Joint Diseases	125	+26%
	99	
Gastro Intestinal System	144	+25%
	115	
Respiratory System	194	+25%
	155	
Central Nervous System	285	-2%
	291	
Infections	191	+25%
	153	
All Other	300	+17%
	256	

EXPLANATORY NOTES

FPC Average - Throughout this report all the figures represented by "FPC Average" are based on the actual figures for the local FPC adjusted to reflect an average practice with the same number of Prescribing Units as this practice.

National Average - As above but based on the actual figures for ENGLAND adjusted to this practice.

Prescribing Unit (PU) - Since the proportion of elderly patients (i.e. aged 65 and over) varies between practices and the elderly receive on average three times as many prescriptions as younger patients, practice list sizes have been converted to prescribing units as follows :

No. of PUs = (No. of patients under 65) + (No. of patients 65 & over x 3)

Therapeutic Groups - The six Therapeutic Groups listed are those which incurred the highest costs in England in 1986, ranked in descending order of total cost. The term "All Other" includes other preparations, dressings and appliances.

Cost - Total Net Ingredient Cost.

GP Prescribing

Quarter Ended Dec 1987

Practice Profile

	Prescribing List Size	Patients 65 & Over	No PUs	Number of Items	Total Cost (£)
SAMPLE G.P. 92100112	2,365	360	3,085	516	2,528
ctice	7,884	1,200	10,284	1,720	8,427
Average	7,884	1,200	10,284	1,454	6,743

Analysis by Prescribing Unit and Patient

	Av. Cost(£) per item	Items per PU	Av. Cost(£) per PU	Items per patient	Av. Cost(£) per patient
SAMPLE G.P. 92100112	4.90	–	–	–	–
ctice	4.90	0.2	0.82	0.2	1.07
Average	4.64	0.1	0.66	0.2	0.86

Percentage of Items Prescribed Generically

Dr SAMPLE G.P. 92100112	7%
Practice	7%
FPC	10%
National	10%

Request for Further Information

LEVEL 2 and LEVEL 3 reports are available on request for yourself, the practice as a whole or both, and for any of the five quarters shown.

LEVEL 2 information provides a more detailed analysis of your prescribing during the quarter in the six major therapeutic groups. Please tick LEVEL 2 box below and select prescribing period(s) and self, practice aggregation or both.
YOU WILL AUTOMATICALLY RECEIVE A LEVEL 2 FOR THIS QUARTER WITHIN THE NEXT FEW DAYS

LEVEL 3 information provides a complete catalogue of every item prescribed during the quarter. A limited version by BNF therapeutic group is also available. Please tick LEVEL 3 box below and select prescribing period(s) and self, practice aggregation or both and therapeutic group(s).

Please indicate your requirements on the request slip below.

LEVEL 2 ☐ LEVEL 3 ☐

Prescribing Period

Quarter ended

- Dec '87 ☐
- Sep '87 ☐
- Jun '87 ☐
- Mar '87 ☐
- Dec '86 ☐

GP/Practice

- Practice Aggregation ☐
- Self ☐

Therapeutic Groups

- All Groups ☐
- Cardiovascular System ☐
- Musculoskeletal ☐
- Gastro Intestinal ☐
- Respiratory System ☐
- Central Nervous ☐
- Infections ☐
- All Other BNF ☐
- Dressing & Appliances ☐
- Other Preparations ☐

Practice
FPC Average

Practice is	Total Cost	Av. Cost per Item £	Practice is
+25%	£2,081	4.33	
	£1,665	4.33	
-16%	£752	6.02	-33.1%
	£890	9.00	
+74%	£1,381	9.59	+39.0%
	£793	6.90	
+25%	£890	4.59	-0.2%
	£712	4.60	
+75%	£1,072	3.76	+78.2%
	£613	2.11	
+25%	£653	3.42	
	£523	3.42	
	£1,543	5.14	-14.8%
	£1,543	6.03	

REQUEST FOR FURTHER INFORMATION

If you would like a more detailed analysis of your prescribing please complete the application overleaf then detach and forward in an envelope to the address below :

GP INFORMATION REQUESTS
PRESCRIPTION PRICING AUTHORITY
INFORMATION DIVISION (TYNE HOUSE)
BRIDGE HOUSE
152 PILGRIM STREET
NEWCASTLE UPON TYNE
NE1 6SN

PRESCRIPTION PRICING AUTHORITY
INFORMATION SERVICES

PRESCRIBING INFORMATION LEVEL 2

FOR QUARTER ENDED SEP 1985

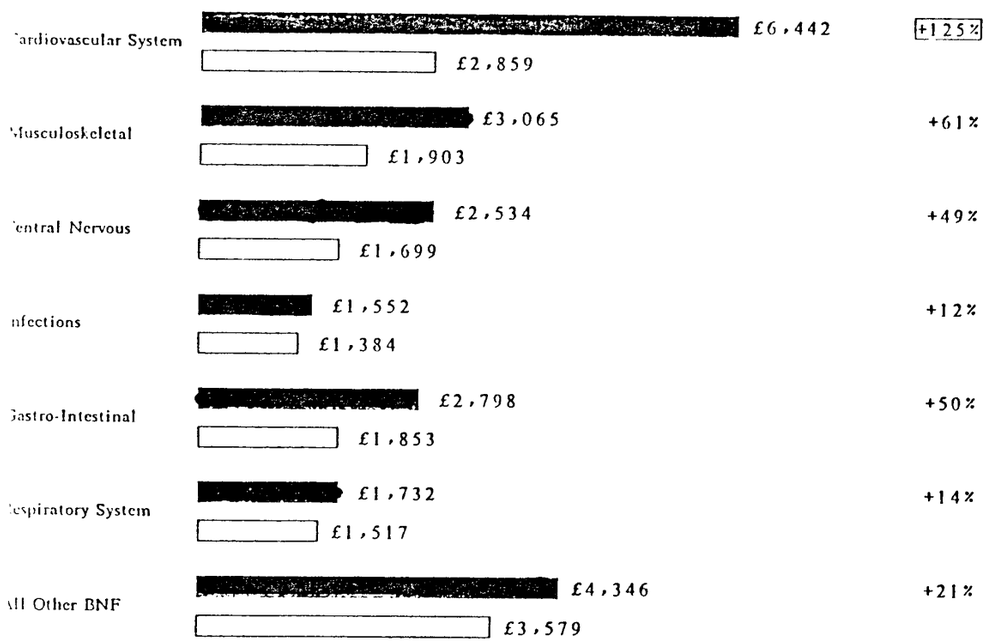
Attn:DR BALL
DR.HILTON + PTNRS
THE SURGERY
BRIDGE HOUSE
152 PILGRIM STREET
NEWCASTLE
NE1 6SN

NEWCASTLE UPON TYNE FPC

1. Practice Prescribing Costs

Practice
FPC Average

Total Costs — Practice : £22,471
FPC Average : £14,796



This LEVEL2 report has been produced because your practice Total Costs were **£7,675 or 52% Above** your FPC Average for the quarter shown.

The following pages contain a more detailed analysis of your own prescribing by Therapeutic Group.

PLEASE SEE EXPLANATORY NOTES ON BACK PAGE

FIGURE 16

2. Doctor and Practice Prescribing Profile

Quarter ended Sep 1985

	Prescribing List Size	Patients 65 & Over	No. of P.U.s
DR. BALL	1,487	200	1,887
PRACTICE	5,379	915	7,209

For single handed doctors, the FPC Average for a notional practice with the same number of PUs has been used in the following tables for comparative purposes.

	Overall			Gastro Intestinal		
	No. Items	Total Costs (£)	Av. Cost per Item (£)	No. Items	Total Costs (£)	Av. Cost per Item
Dr. BALL	1,321	5,648	4.28	97	635	6.
Practice	4,939	22,471	4.55	385	2,798	7.

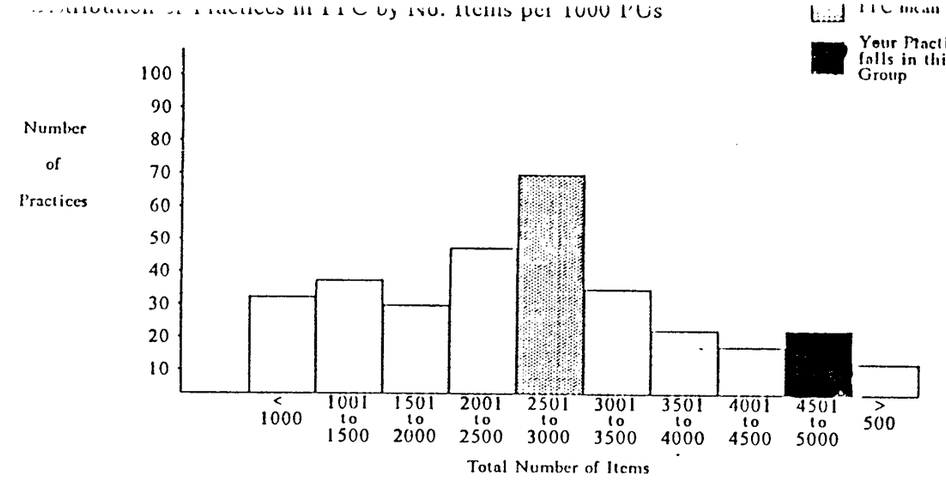
	Cardiovascular			Respiratory		
	No. Items	Total Costs (£)	Av. Cost per Item (£)	No. Items	Total Costs (£)	Av. Cost per Item
Dr. 12345678901234567890	123456789	12345678901	123.456	123456789	12345678901	123.
Practice	123456789	12345678901	123.456	123456789	12345678901	123.

	Central Nervous System			Infections		
	No. Items	Total Costs (£)	Av. Cost per Item (£)	No. Items	Total Costs (£)	Av. Cost per Item
Dr. 12345678901234567890	123456789	12345678901	123.456	123456789	12345678901	123.
Practice	123456789	12345678901	123.456	123456789	12345678901	123.

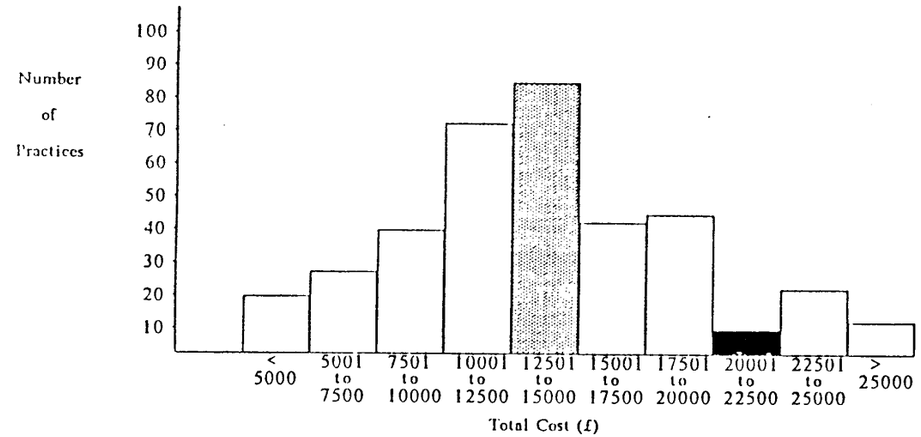
	Musculoskeletal			All Other		
	No. Items	Total Costs (£)	Av. Cost per Item (£)	No. Items	Total Costs (£)	Av. Cost per Item
Dr. 12345678901234567890	123456789	12345678901	123.456	123456789	12345678901	123.
Practice	123456789	12345678901	123.456	123456789	12345678901	12

123

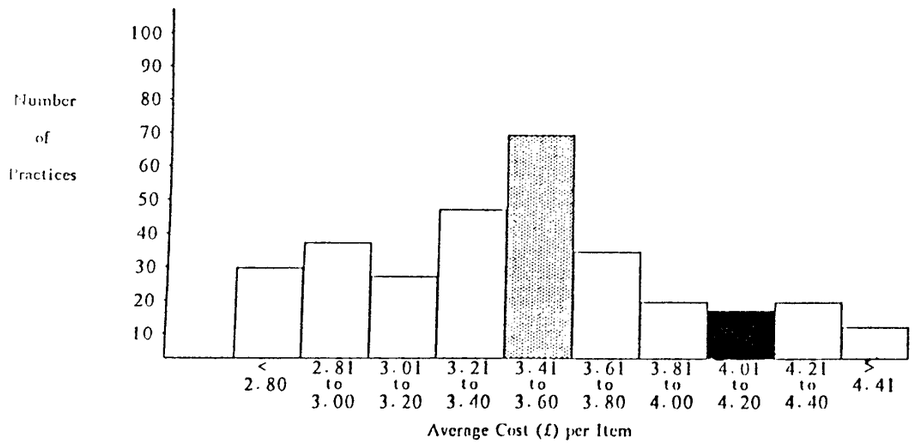
...Distribution of Practices in FPC by No. Items per 1000 PUs



1. Distribution of Practices in FPC by Total Cost per 1000 PUs



Distribution of Practices in FPC by Average Cost per Item



BNF Chapter 2 Cardiovascular System

Drugs prescribed by DR. BALL

(Figures in brackets represent Practice Totals)

Total No. of Items and Costs by section		No. Items		Cost (£)	
		370 = 100%		£1,810.42 = 100%	
2.1	Cardiac Glycosides	40	(138)	11.28	(40.14)
2.2	Diuretics	163	(564)	481.74	(1714.56)
2.3	Anti-Arrhythmic Drugs	3	(10)	37.20	(132.39)
2.4	Beta Adreno Ceptor Blockers	69	(239)	427.17	(1520.34)
2.5	Anti-Hypertensive Drugs	18	(62)	195.28	(695.02)
2.6	**Vasodilators**	**62**	**(215)**	**592.88**	**(2110.12)**
2.7	Symthomimetics	–		–	
2.8	Anticoagulants & Haemostatics	6	(20)	1.76	(6.26)
2.9	Antiplatelet Drugs	6	(20)	55.14	(196.24)
2.10	Fibrinolytic Drugs	–		–	
2.11	Antifibrinolytic Drugs & Haemostatics	–		–	
2.12	Hyperlipidaemia Drugs	3	(10)	7.97	(23.36)
2.13	Local Scerosants	–		–	
2.14		–			
2.15		–			
Leading Cost Sub-Section(s)		187 = 51%		£1,389.87 = 77%	
2.2.4	Co. Preps of Pot. Sparing Diuretics	47		236.84	
2.4.0	Beta Adrenoceptor Blockers	69		427.17	
2.5.5	Angiotesin-Converting Enzy. Inhibitors	9		138.00	
2.6.1	**Vasodilators used in Angina Pectoris**	**53**		**472.95**	
2.6.4	Cerebral Vasodilators			114.91	
Leading Cost Drugs		55 = 15%		£631.20 = 34%	
2.2.3	Spironlactone	14		104.86	
2.4.0	**Atenolol**	**22**		**164.90**	
2.5.5	Caprotil	8		124.90	
2.6.1	Diltiazem Hydrochloride	4		120.03	
2.6.4	Naftidrofuryl Oxalate	7		98.51	
Leading Cost Preparations		52 = 14%		£575.48 = 32%	
2.4.0	**Lasilactone Caps**	**13**		**131.40**	
2.4.0	Atenolol Tabs 10mg	13		105.70	
2.4.0	Tenoretic Tabs	13		112.13	
2.6.1	Tildiem Tabs 60mg	4		120.03	
2.6.1	Adalat Retard Tabs 20mg	9		106.22	

Prescribing Information Level 3

The initial pages are the same as for prescribing level 2 and have therefore been omitted.

FIGURE 17

All Other Drugs & Appliances

Prescribed by DR. BALL

(Figures in brackets represent Practice Totals)

	No. Items	Cost (£)
Total No. of Items and Costs by Group	253 = 100%	£877.52 = 100%

6.	Endocrine System	48	(179)	185.28	(746.96)
7.	Obstetrics & Gynaecology	18	(68)	55.15	(227.33)
8.	Malignant Disease & Imm Suppress	5	(19)	85.34	(344.05)
9.	Nutrition and Blood	44	(164)	117.38	(473.22)
1.	Eye	23	(86)	40.08	(161.58)
2.	Ear Nose & Oropharynx	14	(53)	33.43	(134.77)
3.	**Skin**	**68**	**(254)**	**219.53**	**(885.00)**
4.	Immunological Products & Vaccines	-		-	
5.	Anaesthesia	-		-	
8.	Preparations used in Diagnosis	6	(23)	10.27	(41.40)
9.	Individual Formulations	18	(67)	49.73	(200.48)
0.	Dressings	5	(18)	67.26	(271.16)
1.	Appliances	4	(15)	14.07	(56.72)
2.		-			
3.		-			

Leading Cost Preparations		27 = 11%	£339.94 = 39%
0.10.10.10	**Insulatard 100iu/ml 10ml**	**3**	**62.50**
1.1.2	Mixtard 100iu/ml 10ml	1	34.75
1.2.1	Glinenclamide Tabs 5mg	4	32.20
1.2.1	Euglucon Tabs	3	26.99
2.1	Azathioprine Tabs 50mg	1	21.06
3.2	Provera Tabs 200mg	1	47.06
3.4	Tamoxifen Citrate Tabs 20mg	1	26.94
1.6	Timoptol Eye Drops 0.25% w/v	4	25.90
1.6	Timpotol Eye Drops 0.5% w/v	4	29.10
2.1	Beconase Nasal Spray	5	33.39

EXPLANATORY NOTES

FPC Average - Throughout this report all the figures represented by FPC Average are based on the actual figures for the local FPC adjusted to reflect an average practice with the same number of Prescribing Units as this practice.

Prescribing Unit (PU) - Since the proportion of elderly patients (i.e. aged 65 and over) varies between practices, and the elderly receive on average three times as many prescriptions as younger patients, practice list sizes have been converted to prescribing units as follows :

No. of PUs = (No. of patients under 65) + (No. of patients 65 & over x 3)

Therapeutic Groups - The six Therapeutic Groups listed are those which incurred the highest costs in England in 1985, ranked in descending order of total cost. The term "All Other" includes other preparations, dressings and appliances.

Cost - Total Net Ingredient Cost.

1. Gastro – Intestinal System

1.1 Antacids

1.1.1 Official Antacids & Simple Proprietaries

	Qty	No. Prescriptions	Cost £
ALUMINIUM HYDROXIDE			
Aluminium Hydroxide Mixture	300	1	0.53
MAGNESIUM SALTS (ANTACID)			
Magnesium Trisilicate Mixture	500	1	0.50
		2	1.03

1.1.2 Co. Prop. Antacids & Prop. Complexes

Asilone Ⓡ Susp 125mg/5ml	500	3	5.76
Gastrocote Ⓡ Tabs	100	1	4.00
Gaviscon Ⓡ Tabs	120	1	5.20
	240	1	10.40
Gaviscon Ⓡ Liquid	250	2	21.66
	300	1	1.73
	500	8	23.04
	1000	2	11.52
Gaviscon Ⓡ Infant Powder Sachets 2g	30	1	4.92
	100	1	16.40
Polycrol Ⓡ Forte Gel	500	1	1.78
		22	106.41

1.2 Antispasmodics

ATROPINE METHONITRATE			
Emydrin Ⓡ Drops	15	1	2.89
MEPENZOLATE BROMIDE			
Cantil Ⓡ Tabs 25mg	180	1	9.90
MEBEVERINE HYDROCHLORIDE			
Colofal Ⓡ Tabs 135mg	100	1	8.35
METOCLOPROMIDE HYDROCHLORIDE			
Maxolon Ⓡ Syrup 5mg/5ml	60	1	0.91
Maxolon Ⓡ Tabs 10mg	15	1	1.32
	20	1	1.77
	60	1	5.30
PEPPERMINT OIL			
Colpermin Ⓡ Caps	100	1	10.58
		8	41.02

1.2.1 Compound Antispasmodic Preparations

Stelabid Ⓡ Tabs	100	1	4.73

Dr. Ball

1.3 Ulcer Healing Drugs

	Qty	No. Prescriptions	Cost £
CARBENOXOLONE SODIUM			
Pyrogastrone Ⓡ Tabs	120	1	24.04
CIMETIDINE			
Cimetidine Tabs 200mg	30	1	4.45
	60	1	8.90
	150	2	44.50
Tagamet Ⓡ Tabs 400mg	28	1	8.30
RANITIDINE			
Ranitidine Tabs 150mg	60	1	27.43
	30	4	54.88
	60	5	137.15
		16	309.65

1.4 Antidiarrhoeal Drugs

1.4.2 Antidiarrhoeal Drugs which Reduce Motility

CODEINE PHOSPHATE			
Codeine Phosphate Tabs 30mg	30	1	0.59
DIPHENOXYLATE HYDROCHLORIDE			
Lomotil Ⓡ Tabs 2.5mg	60	1	5.88
LOPERAMIDE HYDROCHLORIDE			
Imodium Ⓡ Caps 2mg	20	1	2.24
	21	1	2.35
		4	11.06

1.5 Treatment of Chronic Diarrhoea

SULPHASALAZINE			
Sulphasalazine Tabs	120	1	10.22
	120	1	10.50
Sulphasalazine Tabs	200	1	17.03
		3	37.75

6. Summary of Prescribing by Therapeutic Group for Dr. Ball

BNF Chap.	BNF Therapeutic Group	Total No. Items	Total Cost (£)	Items per 1000 Patients	Cost per 1000 Patients (£)	Items per 1000 P.U.s	Cost per 1000 P.U.s (£)
1	Gastro-Intestinal System	97	653.46	60	440	50	350
2	Cardiovascular System	370	1810.42	240	1,220	200	960
3	Respiratory System	104	465.86	60	310	60	250
4	Central Nervous System	261	628.39	170	420	140	350
5	Infections	129	455.98	80	310	70	220
6	Endocrine System	48	185.28	30	120	20	90
7	Obstetrics & Gynaecology	18	55.15	10	40	9	20
8	Malignant Diseases & Immune Suppression	5	85.34	3	60	2	40
9	Nutrition & Blood	44	117.38	20	70	20	60
10	Musculoskeletal & Joint Diseases	86	598.92	50	400	40	320
11	Eye	23	40.08	10	30	10	20
12	Ear, Nose & Oropharynx	14	33.43	9	20	7	10
13	Skin	68	219.53	40	150	30	110
14	Immunological Products & Vaccines	0	0	0	0	0	0
15	Anaesthesia	0	0	0	0	0	0
	Sub Total	1267	5349.22	782	3,590	658	2,800
	Special Groups – Non BNF						
18	Preparations used in Diagnosis	6	10.27	4	6	5	5
19	Other	39	250.67	0	170	20	130
20	Dressings	5	67.26	3	40	2	30
21	Appliances	4	14.07	2	9	2	7
	Sub Total	54	342.27	9	125	27	172
	Total	1321	5691.49	791	3,715	685	2,972

EXPLANATORY NOTES

FPC Average – Throughout this report all the figures represented by 'FPC Average' are based on the actual figures for the local FPC adjusted to reflect an average practice with the same number of Prescribing Units as this practice.

Prescribing Unit (PU) – Since the proportion of elderly patients (i.e. aged 65 and over) varies between practices, and the elderly receive on average three times as many prescriptions as younger patients, practice list sizes have been converted to prescribing units as follows:–

No. of PUs = (No. of patients under 65) + (No. of patients 65 & over x 3)

Therapeutic Groups – The six Therapeutic Groups listed on pages 1 and 2 are those which incurred the highest costs in England in 1985. The term "All Others" includes other preparations, dressings and appliances.

Costs – Total Net Ingredient Cost.

Ⓡ – Proprietary Product.

*BS – Borderline Substance – Non ACBS

*PA – Personally Administered.

7. Number of Items and Cost per 1000 Patients/P.U.s

	Items per 1000 patients	Cost per 1000 patients (£)	Items per 1000 P.U.s	Cost per 1000 P.U.s (£)
Practice	241	4,177	180	3,117
FPC	210	2,750	148	2,052

Index

APPENDIX - V

COST REDUCTION SUGGESTIONS FOR REGIONAL BUREAUX

GERMANY

These suggestions have been excluded from the main body of this report because a more radical solution is proposed than is envisaged in this section. However as the German system is extremely complex the radical idea may be difficult to implement and these proposals may be helpful in the interim or preferred to the radical concept.

1. Peaks and troughs of workload in Regional Bureaux

Most pharmacists prescriptions are collected 3 times a month by courier. These are processed at top speed to give either an advance or a full payment to the pharmacist and a bill to the insurance fund in a very tight timetable. After this is complete the staff have little work to process.

Costs could be reduced as follows:-

Month 1

a) collect each pharmacists parcel monthly but at a different time. (e.g. Area A - week 1, Area B - week 2 etc)

b) pay well-established pharmacists on their claim verified by weight and comparison with usual payment.

c) Bill Insurance Fund on same basis.

d) Feed prescriptions through key-punch operation at UNIFORM rate, adjusting staffing levels as appropriate.

e) Feed prescriptions through MACHINE SORT at a Uniform rate to obtain an accurate settlement for both pharmacists and Insurance Funds.

Month 2

Repeat process as above, but initial settlement to pharmacists and Insurance Funds contains an adjustment from Month 1.

The rationale for this is the low level of error found in pharmacists claims generally and the accuracy of this system found in Holland. Any pharmacists found to be inaccurate could be processed fully before payment.

It is recognised that existing contracts with Insurance Funds/and Pharmacists would have to be altered.

Cost Reduction Suggestions for Regional Bureaux (contd)

2. Combining Pharmacists payments and Data Capture -

EXISTING SYSTEM

a) On receipt of the latest prescriptions machine sort the high-cost doctors as identified by the Insurance Funds from earlier statistics.

b) Process remaining prescriptions as usual.

c) Process high-cost doctors through data-entry identifying Insurance Fund and Pharmacist.

d) Combine pharmacist payment program and data-capture program to produce accurate accounts for pharmacists and Insurance Funds.

The benefits of this procedure are:-

i) removes double-handling to achieve data-capture.

ii) should enable accurate accounts to be presented.

iii) dramatically speeds up provision of information thus making prescribing counselling much more effective.

iv) reduces costs of processing.

This approach is possible because a doctor identified in earlier statistics as being high-cost is unlikely to dramatically alter his prescibing pattern.

3. Data-Capture Speeds

Whatever strategy is adopted in Germany it is likely that those involved with data-capture would find it helpful to raise the efficiency of data-capture to cut costs.

This can still be achieved without endorsing my radical proposal and save Insurance Funds significant sums.

SUGGESTED DATA CAPTURE TARGETS FOR GERMANY

I visited a Regional prescription processing bureau, (Apotheken Rechen Zentrum), which has contracts with approximately 2025 pharmacists, and employs 180 staff. It receives 4 million forms monthly (about 7.2 million individual medicines etc)

The staff distribution (based on English processing operations) might be roughly:-

20	staff to weigh forms and sort Insurance Funds
130	staff on data capture
10	in computer operations and support
10	in accounts
10	in Management and ancillary duties
180	

The English national data-entry average is 2,600 medicines per day. This excludes holidays, sickness and interruptions to work (such as maintenance on computers). It is not an appropriate measure for forecasting workload capacity. Management use a different measure which takes account only of staff employed and actual outputs (net output). The target net output for 1988 is 1,800 items (medicines) per day.

Using the same criteria, the data-entry average is Germany is quoted as varying from 900 to 1,300 items per day. I have taken 800 per day as the net output for Germany.

In case my estimate of the staff available for data-capture is excessive I have also estimated the potential at a lower level of staff availability.

It will also be noted from the calculations below that 10% data-capture should be possible, in the Bureau illustrated, with 45 staff leaving 85 staff as key-punch operators. This would enable the Bureau to continue the existing system to a large extent using the suggestions in Appendix V , as a check on pharmacists claims, where the number of data entry operators proved inadequate.

Existing German Speeds

1. 50% of Bureau staff on data capture

   90 data capture operators x 800 items per day x 20.5 working days per month (average month) = 1,476,000 items to data entry per month

   20.5% of intake

2. 70% of Bureau staff on data capture

   130 data capture operators x 800 items per day x 20.5 days = 2,132,000 items to data entry per month

   29.6% of intake

English Speeds

If the English data capture speeds can be achieved the data-entry capacity will be as follows:-

1. 50% of Bureau staff on data-capture

   90 data-capture operators x 1,800 items per day x 20.5 days = 3,321,000 items to data entry per month

   46.1% of intake

2. 70% of Bureau staff on data capture

   130 data capture operators x 1,800 items per day x 20.5 days = 4,797,000 items to data entry per month

   66.6% of intake

Equipment

The equipment used in England for 130 data capture operators would be 4 mini-computer systems. These are entirely dedicated to data-capture and support up to 36 terminals each.

The capital cost (1988 prices) would be £300 -£350,000 *
It is assumed that the Bureau main-frames could handle the data volumes discussed.

(for further explanation of system design and operation, see text - England)

* 880,000 - 1,030,000 Deutsch Marks. (4 mini-computer systems)

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Apology

The Manager and Chairman of the RUCB in Rotterdam kindly agreed to see me. Unfortunately a visit to another organisation in Rotterdam could not take place and I felt it necessary to rearrange the schedule to fill that gap. I was unable to warn the RUCB of this.

Germany

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Dr. Smith	Principal Medical Officer
Dr. Troup Dr. Cuthbert	Senior Medical officer
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Mr. J. Merrills

Mr. P. Green

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Miss S. O'Toole

Mr. Fladd

Printing and Stationery

Mr. J. D. Cross

Library

Ms. J. Allbrook (DHSS Librarian)

Family Practitioner Committees

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Redbridge & Waltham Forest	Sunderland
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Wirral	Northamptonshire
Bury	Berkshire

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Recognition Equipment Inc.

OCR Scan data

ROCC computers

Mekon Microsystems

Burnley Packaging Machinery

Smith & Ouzman Ltd.

Lloyds Bank

National Westminster Bank

Salters Industrial Measurement

E.C.R. Ltd., (Scales Wholesalers)

'Which Computer?'

Platen Press

Valenbeck Ltd.